

## Content

This is an example of a MAPLE 7 worksheet for normalization, finding invariants and reduction of the following system:

$Dx = Mx + f_2(x) + f_3(x) + \text{higher order terms}$  , where:

$$M := \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ -\alpha_1 & -\alpha_2 & 0 & 0 \\ -\alpha_2 & -\alpha_3 & 0 & 0 \end{bmatrix} \quad f_2 := [0, 0, \beta x_1^2, 5 \beta x_2 x_3] \quad f_3 := [0, 0, 0, 0]$$

## Disclaimer

While our testing, as well as computations of examples, indicate correctness and reliability of the programs, the authors cannot guarantee the correctness of any routine.

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The programs may be used for any non-commercial purpose by individuals and scientific organizations.

## Initialization

```
with(linalg):  
Warning, the protected names norm and trace have been redefined and  
unprotected
```

```
The Message: "Warning, the protected names norm and trace have been redefined and  
unprotected" will not inflict the following calculations. It derives from using the linalg package  
instead of the LinearAlgebra package, for the "linalg package is useful for doing computations  
in abstract linear algebra" (Maple glossary). This allows parameter dependent calculations.
```

## Primitive operations

## Procedures

## Input

The vector field  $v$  is given in the form  $v(x)=Mx+f_2[x]+...$  where  $M$  is an  $n \times n$  matrix and the  $f_j$  are homogeneous polynomials  $C^n \rightarrow C^n$  of degree  $j$ . The following routines are capable of working with parameters, so you might want to apply them for parameter dependent vector fields. Note that maple assumes non-degeneracies of all parameters.

```
Enter the linearization M of the vector field. The following calculations assume that M is  
semisimple.
```

```
> M:=matrix(4,4,[0,0,1,0,0,0,0,1,-alpha[1],-alpha[2],0,0,-alpha  
[2],-alpha[3],0,0]);
```

$$M := \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ -\alpha_1 & -\alpha_2 & 0 & 0 \\ -\alpha_2 & -\alpha_3 & 0 & 0 \end{bmatrix}$$

Let targetspace be the desired degree of the normal form. targetspace then is also the degree of the Taylor expansion of the vector field.

```
> targetspace:=3;
```

```
targetspace := 3
```

Just evaluate the following lines.

```
> f:=vector(targetspace,0);
```

```
> dim:=rowdim(M);
```

```
dim := 4
```

```
> for i from 1 to targetspace do
```

```
>   f[i]:=vector(dim,0);
```

```
> od:
```

```
> f[1]:=Matrix2Polynom(M);
```

$$f_1 := [x_3, x_4, -\alpha_1 x_1 - \alpha_2 x_2, -\alpha_2 x_1 - \alpha_3 x_2]$$

Enter the higher order terms of the Taylor expansion of the vector field: f[2]:=vector(...);

```
f[3]:=... f[targetspace]:=vector(...);
```

```
> f[2]:=vector([0,0,beta*x[1]^2,beta*5*x[2]*x[3]]);f[3]:=vector([0,0,0,0]);
```

$$f_2 := [0, 0, \beta x_1^2, 5 \beta x_2 x_3]$$

$$f_3 := [0, 0, 0, 0]$$

Enter the maximal degree of calculated invariant polynomials.

```
> invariantsdegree:=2;
```

```
invariantsdegree := 2
```

## Automatic initialization

```
> dim:=rowdim(M);
```

```
> minimalpoly:=minpoly(M,tau);
```

$$\text{minimalpoly} := -\alpha_2^2 + \alpha_1 \alpha_3 + (\alpha_1 + \alpha_3) \tau^2 + \tau^4$$

```
> sigmaset:=symmetriceigenvalues(minimalpoly,dim):
```

## Determining annihilating polynomials

Annihilating polynomials for the action of ad M on P\_r: (Remember that x -> p(-x) annihilates the action of ad M on P\_0 if p annihilates M.)

```
> liebracketannihilator:=AnnihilatingPolynomials(sigmaset,subs(
tau=-tau,minimalpoly),minimalpoly,dim,targetspace+1):
```

```
"Finished with step ", 1, "."
```

```
"Finished with step ", 2, "."
```

```
"Finished with step ", 3, "."
```

```
"Finished with step ", 4, "."
```

Now liebracketannihilator[j] annihilates the action of ad M on P\_{j-1}.

```
> invpoly:=AnnihilatingPolynomials(sigmaset,minimalpoly,minimal
poly,dim,invariantsdegree):
```

```
"Finished with step ", 1, "."
```

```
"Finished with step ", 2, "."
```

[ Now invpoly[j] annihilates the action of L\_M on S\_j.

## Output

```

> for j from 1 to targetspace+1 do
>   print("Annihilating polynomial for ad M on homogeneous
polynomials of degree",j-1);
>   print(liebracketannihilator[j]);
> od;
"Annihilating polynomial for ad M on homogeneous polynomials of degree", 0

$$-\alpha_2^2 + \alpha_1 \alpha_3 + \tau^2 \alpha_1 + \tau^2 \alpha_3 + \tau^4$$

"Annihilating polynomial for ad M on homogeneous polynomials of degree", 1

$$\tau(-16 \alpha_2^2 + 4 \tau^2 \alpha_1 + \tau^4 + 16 \alpha_1 \alpha_3 + 4 \tau^2 \alpha_3)$$


$$(\alpha_1^2 + 2 \tau^2 \alpha_1 + \tau^4 - 2 \alpha_1 \alpha_3 + 2 \tau^2 \alpha_3 + \alpha_3^2 + 4 \alpha_2^2)$$

"Annihilating polynomial for ad M on homogeneous polynomials of degree", 2

$$(-\alpha_2^2 + \alpha_1 \alpha_3 + \tau^2 \alpha_1 + \tau^2 \alpha_3 + \tau^4)(16 \alpha_1^4 + 40 \tau^2 \alpha_1^3 - 136 \alpha_1^3 \alpha_3 + 321 \alpha_1^2 \alpha_3^2$$


$$+ 50 \alpha_1^2 \alpha_3 \tau^2 + 33 \tau^4 \alpha_1^2 + 200 \alpha_1^2 \alpha_2^2 - 136 \alpha_1 \alpha_3^3 + 50 \tau^2 \alpha_1 \alpha_3^2 - 850 \alpha_2^2 \alpha_1 \alpha_3$$


$$+ 52 \tau^4 \alpha_1 \alpha_3 + 70 \tau^2 \alpha_1 \alpha_2^2 + 10 \tau^6 \alpha_1 + 16 \alpha_3^4 + 40 \alpha_3^3 \tau^2 + 33 \tau^4 \alpha_3^2 + 200 \alpha_3^2 \alpha_2^2$$


$$+ 70 \alpha_2^2 \tau^2 \alpha_3 + 10 \tau^6 \alpha_3 + 14 \tau^4 \alpha_2^2 + \tau^8 + 625 \alpha_2^4)$$


$$(81 \alpha_1 \alpha_3 + 9 \tau^2 \alpha_1 - 81 \alpha_2^2 + 9 \tau^2 \alpha_3 + \tau^4)$$

"Annihilating polynomial for ad M on homogeneous polynomials of degree", 3

$$(\tau^8 + 118 \tau^4 \alpha_3^2 - 56 \tau^4 \alpha_2^2 + 292 \tau^4 \alpha_1 \alpha_3 + 1800 \alpha_3^2 \alpha_2^2 + 1800 \alpha_1^2 \alpha_2^2$$


$$+ 1100 \tau^2 \alpha_1 \alpha_3^2 - 560 \tau^2 \alpha_1 \alpha_2^2 - 560 \alpha_2^2 \tau^2 \alpha_3 + 1100 \alpha_1^2 \alpha_3 \tau^2 + 20 \tau^6 \alpha_1$$


$$+ 6886 \alpha_1^2 \alpha_3^2 - 1476 \alpha_1 \alpha_3^3 - 1476 \alpha_1^3 \alpha_3 + 180 \tau^2 \alpha_1^3 - 16400 \alpha_2^2 \alpha_1 \alpha_3$$


$$+ 118 \tau^4 \alpha_1^2 + 180 \alpha_3^3 \tau^2 + 20 \tau^6 \alpha_3 + 81 \alpha_3^4 + 81 \alpha_1^4 + 10000 \alpha_2^4)$$


$$(256 \alpha_1 \alpha_3 + 16 \tau^2 \alpha_1 - 256 \alpha_2^2 + \tau^4 + 16 \tau^2 \alpha_3)$$


$$(16 \alpha_1^2 + 8 \tau^2 \alpha_1 + \tau^4 - 32 \alpha_1 \alpha_3 + 8 \tau^2 \alpha_3 + 16 \alpha_3^2 + 64 \alpha_2^2) \tau$$


$$(-16 \alpha_2^2 + 4 \tau^2 \alpha_1 + \tau^4 + 16 \alpha_1 \alpha_3 + 4 \tau^2 \alpha_3)$$


$$(\alpha_1^2 + 2 \tau^2 \alpha_1 + \tau^4 - 2 \alpha_1 \alpha_3 + 2 \tau^2 \alpha_3 + \alpha_3^2 + 4 \alpha_2^2)$$

> print("Annihilating polynomial for L_M on homogeneous
polynomials of degree",0);print(1);
for j from 1 to invariantsdegree do
>   print("Annihilating polynomial for L_M on homogeneous
polynomials of degree",j);
>   print(invpoly[j]);
> od;
"Annihilating polynomial for L_M on homogeneous polynomials of degree", 0
1
"Annihilating polynomial for L_M on homogeneous polynomials of degree", 1

```

$$-\alpha_2^2 + \alpha_1 \alpha_3 + \tau^2 \alpha_1 + \tau^2 \alpha_3 + \tau^4$$

"Annihilating polynomial for L\_M on homogeneous polynomials of degree", 2

$$\tau(-16 \alpha_2^2 + 4 \tau^2 \alpha_1 + \tau^4 + 16 \alpha_1 \alpha_3 + 4 \tau^2 \alpha_3)$$

$$(\alpha_1^2 + 2 \tau^2 \alpha_1 + \tau^4 - 2 \alpha_1 \alpha_3 + 2 \tau^2 \alpha_3 + \alpha_3^2 + 4 \alpha_2^2)$$

## Higher-order normalization

```
[ > dgl:=matrix(targetspace,targetspace): #the differential
equation in the various transformed states
[ > Trafo:=vector(targetspace):Trafo[1]:=vector(dim,0): #the
transformation is exp(Trafo).
[ > for i from 1 to targetspace do
[ >   dgl[1,i]:=eval(f[i]);
[ > od:
[ > for i from 2 to targetspace do
[   #print("starting with
[   ",collect(expand(liebracketannihilator[i+1]),tau));
[ >
[   erg:=semisimplecalculation(M,collect(expand(liebracketannihil
[   ator[i+1]),tau),f[i]);
[   #print("transformation and transformed part in normal
[   form calculated for one degree higher");
[ >   for j from 1 to i-1 do
[ >     dgl[i,j]:=eval(dgl[i-1,j]);
[ >   od;
[ >   #print("some terms are copied (degree < r)");
[ >   Trafo[i]:=eval(erg[1]);
[ >   dgl[i,i]:=eval(erg[2]);
[ >   #print("some terms are chosen as it was calculated
before");
[ >   for j from i+1 to targetspace do
[ >     dgl[i,j]:=eval(dgl[i-1,j]);
[ >     k:=1;
[ >     while j >= k*(i-1)+1 do
[ >       hlp:=scalarmul(dgl[i-1,j-k*(i-1)],1/k!);
[ >       for l from 1 to k do
[ >         hlp:=lie(erg[l],hlp);
[ >       od;
[ >       dgl[i,j]:=matadd(dgl[i,j],hlp);
[ >       k:=k+1;
[ >     od;
[ >     #print("transformation of higher terms up to degree
[ >     ",j," done in this step")
[ >   od;
[ >   for j from i to targetspace do
[ >     f[j]:=eval(dgl[i,j]);
[ >   od;
[ >   #print("transformation succesfull up to degree ",i);
[ > od:
```

The The previous lines compute Poincare-Dulac normal form up to degree targetspace. It is stored in the variable dgl. dgl is a field of dimension targetspace^2: dgl[i,1]+dgl[i,2]+...+dgl[i,targetspace] is the Poincare-Dulac-normal form up to degree i. The

corresponding transformation is given by  $\exp(\text{ad}(\text{Trafo}[i])) \exp(\text{ad}(\text{Trafo}[i-1])) \dots \exp(\text{ad}(\text{Trafo}[2]))$ . An output of the results is provided in the next steps:

— **Output of the Poincare-Dulac normal form**

```
> print("Poincare-Dulac normal form up to degree",
targetspace, ":");
for i from 1 to targetspace do
  print(dgl[targetspace, i]);
> od;
```

"Poincare-Dulac normal form up to degree", 3, ":"

$$[x_3, x_4, -\alpha_1 x_1 - \alpha_2 x_2, -\alpha_2 x_1 - \alpha_3 x_2]$$

$$[0, 0, 0, 0]$$

$$\left[ -\frac{1}{24} (15435 \alpha_1^3 \alpha_3^2 \alpha_2^6 x_1 x_2^2 + 650 \alpha_1^3 \alpha_3^2 \alpha_2^6 x_2^2 x_3 + 7065 \alpha_1^3 \alpha_3^2 \alpha_2^5 x_2 x_3^2 \right.$$

$$- 10200 \alpha_1^3 \alpha_3 \alpha_2^6 x_4^2 x_3 - 60 \alpha_1^3 \alpha_3 \alpha_2^6 x_1 x_4^2 - 6425 \alpha_1^3 \alpha_3 \alpha_2^7 x_2^2 x_4$$

$$- 12775 \alpha_1^3 \alpha_2^7 x_1 x_4 \alpha_3 + 2316 \alpha_1^2 \alpha_2^3 x_1 x_4 \alpha_3^2 + 4486 \alpha_1^2 \alpha_2^5 x_1 x_4 \alpha_3^3$$

$$- 7605 \alpha_1^2 \alpha_2^7 x_2 x_3^2 \alpha_3 - 7478 \alpha_1^2 \alpha_2^2 x_3 x_1^2 \alpha_3^4 + 300 \alpha_1^2 \alpha_2^3 x_1 x_2 \alpha_3^6$$

$$- 800 \alpha_1^2 \alpha_2^4 x_1 x_3 \alpha_3^5 - 2425 \alpha_1^2 \alpha_2^6 x_1 x_3 \alpha_3^3 + 2050 \alpha_1^2 \alpha_2^3 x_3^4 \alpha_3^4$$

$$+ 945 \alpha_1^3 \alpha_2^5 x_2 x_4^2 + 90 \alpha_1^3 \alpha_2^3 x_2 x_4 \alpha_3^4 - 60 \alpha_1^3 \alpha_2^2 x_1 x_4 \alpha_3^5$$

$$- 765 \alpha_1^3 \alpha_2^4 x_1 x_4 \alpha_3^3 - 525 \alpha_1^3 \alpha_2^5 x_2 x_4 \alpha_3^3 - 582 \alpha_1^3 \alpha_2^3 x_2 x_4 \alpha_3^4$$

$$+ 2985 \alpha_1^3 \alpha_2^4 x_1 x_2 \alpha_3^4 - 60 \alpha_1^3 \alpha_2^2 x_1 x_2 \alpha_3^6 - 1734 \alpha_1^3 \alpha_2^5 x_1 x_4 \alpha_3^2$$

$$+ 840 \alpha_1^3 \alpha_2^2 x_1 x_4 x_2 \alpha_3^5 + 1956 \alpha_1^3 \alpha_2^4 x_1 x_4 x_2 \alpha_3^3 + 2600 \alpha_1^3 \alpha_2^4 x_1 x_4 x_2 \alpha_3^4$$

$$+ 7600 \alpha_1^3 \alpha_2^6 x_1 x_4 x_2 \alpha_3^2 + 300 \alpha_1^3 x_3 x_1^2 \alpha_3^6 \alpha_2^2 - 950 \alpha_1^3 x_3 x_1^2 \alpha_2^6 \alpha_3^2$$

$$+ 2154 \alpha_1^3 \alpha_3^3 \alpha_2^4 x_2^2 x_3 + 16 \alpha_1^3 \alpha_2^7 x_1 x_3 x_2 + 240 \alpha_1^3 \alpha_3 \alpha_2^6 x_1 x_4 x_2$$

$$+ 528 \alpha_1^3 \alpha_3^2 \alpha_2^4 x_4^2 x_3 + 144 \alpha_1^3 \alpha_3 \alpha_2^6 x_2^2 x_3 + 90 \alpha_1^3 \alpha_3 x_3 x_1^2 \alpha_2^6$$

$$+ 360 \alpha_1^3 \alpha_3 \alpha_2^5 x_3^2 x_4 - 384 \alpha_1^3 \alpha_3^2 \alpha_2^5 x_2^2 x_4 - 1116 \alpha_1^3 \alpha_3^2 \alpha_2^5 x_1 x_3 x_2$$

$$- 3330 \alpha_1^3 \alpha_3^3 \alpha_2^4 x_2 x_4 x_3 + 5900 \alpha_1^3 \alpha_2^8 x_1 x_4 x_2 - 360 \alpha_1^3 \alpha_3 \alpha_2^6 x_4 x_3 x_2$$

$$+ 13150 \alpha_1^3 \alpha_3 \alpha_2^7 x_1 x_3 x_2 + 3450 \alpha_1^3 \alpha_3^2 \alpha_2^5 x_1 x_4 x_3 - 2595 \alpha_1^3 \alpha_3 \alpha_2^6 x_1 x_3^2$$

$$- 12975 \alpha_1^3 \alpha_3 \alpha_2^7 x_1^2 x_2 + 1800 \alpha_1^2 \alpha_3^3 \alpha_2^6 \alpha_3^2 - 4052 \alpha_1^3 \alpha_2^3 x_1 x_3 x_2 \alpha_3^4$$

$$+ 1140 \alpha_1^3 \alpha_2^2 x_2^2 x_3 \alpha_3^5 - 450 \alpha_1^3 \alpha_2^2 x_2^2 x_3 \alpha_3^6 - 332 \alpha_1^3 \alpha_2^3 x_4^3 \alpha_3^3$$

$$+ 550 \alpha_1^3 \alpha_2^3 x_4^3 \alpha_3^4 + 90 \alpha_1^3 \alpha_2^3 x_2^3 \alpha_3^5 - 2775 \alpha_1^3 x_3 x_1^2 \alpha_2^8 + 24 \alpha_1^3 \alpha_2^6 x_4^2 x_3$$

$$- 678 \alpha_1^3 \alpha_3^2 x_3^4 \alpha_2^4 - 168 \alpha_1^3 \alpha_3 \alpha_2^5 x_4^3 - 16 \alpha_1^3 \alpha_2^7 x_1 x_4^2 - 720 \alpha_1^3 \alpha_3^3 \alpha_2^5 x_2^3$$

$$+ 6625 \alpha_1^3 \alpha_3 x_3^3 \alpha_2^6 + 720 \alpha_1^3 \alpha_2^8 x_1 x_2^2 - 50 \alpha_1^3 \alpha_2^8 x_2^2 x_3 + 360 \alpha_1^3 \alpha_2^7 x_2 x_3^2$$

$$+ 2850 \alpha_1^3 \alpha_2^7 x_3^2 x_4 + 180 \alpha_1^3 \alpha_2^7 x_2 x_4^2 - 60 \alpha_1^2 x_1 \alpha_2^3 \alpha_3^2 - 1665 \alpha_1^2 x_1 \alpha_2^3 \alpha_3^4 \alpha_3^5$$

$$\begin{aligned}
& -330 \alpha_1^2 x_1^2 x_3 \alpha_3^8 + 300 \alpha_1^2 x_3^3 \alpha_3^6 \alpha_2^2 + 400 \alpha_1^3 \alpha_2^3 x_2^2 x_4 \alpha_3^5 \\
& + 1200 \alpha_1^6 \alpha_3 x_3 x_1^2 \alpha_2^4 + 500 \alpha_1^6 \alpha_3^2 \alpha_2^3 x_2^2 x_4 - 1950 \alpha_1^6 \alpha_3^3 \alpha_2 x_3^2 x_4 \\
& + 240 \alpha_1^6 \alpha_3^3 \alpha_2^2 x_1 x_2^2 + 750 \alpha_1^6 \alpha_3^2 \alpha_2^2 x_4 x_3 + 80 \alpha_1^6 \alpha_3^3 \alpha_2 x_1 x_3 x_2 \\
& - 2700 \alpha_1^6 \alpha_3^3 \alpha_2^2 x_1 x_4 x_2 + 7350 \alpha_1^6 \alpha_3^2 \alpha_2^3 x_1^2 x_4 + 1275 \alpha_1^6 \alpha_3^3 \alpha_2^2 x_1^2 x_3 \\
& - 450 \alpha_1^6 \alpha_3^3 \alpha_2^2 x_2^2 x_3 + 120 \alpha_1^6 x_1 x_3^2 \alpha_3^2 \alpha_2^2 + 240 \alpha_1^6 \alpha_2^2 x_1 x_4^2 \alpha_3^2 \\
& + 600 \alpha_1^6 \alpha_2^3 x_1^2 x_2 \alpha_3^2 - 900 \alpha_1^3 \alpha_2^3 x_1^2 x_4 \alpha_3^5 - 6925 \alpha_1^3 \alpha_2^5 x_1^2 x_4 \alpha_3^3 \\
& + 1825 \alpha_1^3 x_3 x_1^2 \alpha_3^4 \alpha_2^4 + 3060 \alpha_1^3 \alpha_2^3 x_2 x_3^2 \alpha_3^4 + 5086 \alpha_1^3 \alpha_2^2 x_1^2 x_3 \alpha_3^5 \\
& - 670 \alpha_1^3 \alpha_2 x_1^2 x_4 \alpha_3^6 - 2746 \alpha_1^3 \alpha_2^3 x_1^2 x_4 \alpha_3^4 + 5125 \alpha_1^4 \alpha_3^2 \alpha_2^5 x_2^2 x_4 \\
& + 12495 \alpha_1^4 \alpha_3^2 \alpha_2^5 x_1^2 x_2 - 9950 \alpha_1^4 \alpha_3^2 \alpha_2^5 x_1 x_3 x_2 - 1200 \alpha_1^6 \alpha_2^3 x_1 x_3 x_2 \alpha_3^2 \\
& + 2250 \alpha_1^6 \alpha_2^2 x_1^2 x_4 \alpha_3^4 + 40 \alpha_1^6 \alpha_2 x_1^2 x_4 \alpha_3^3 - 72 \alpha_1^6 x_3 x_1^2 \alpha_3^2 \alpha_2^2 \\
& - 2400 \alpha_1^6 \alpha_3^4 x_1 x_4 x_2 - 100 \alpha_1^6 \alpha_3^3 \alpha_2^3 x_4^3 + 240 \alpha_1^4 \alpha_3^5 \alpha_2^5 x_1 x_4 x_3 \\
& + 8925 \alpha_1^4 \alpha_3^2 \alpha_2^4 x_4^2 x_3 + 2595 \alpha_1^4 \alpha_3^2 x_1 x_3^2 \alpha_2^4 - 350 \alpha_1^4 \alpha_3 \alpha_2^6 x_2^2 x_3 \\
& + 6825 \alpha_1^4 \alpha_3 x_3 x_1^2 \alpha_2^6 - 540 \alpha_1^4 \alpha_3 \alpha_2^5 x_2^2 x_4 - 7350 \alpha_1^4 \alpha_3 \alpha_2^5 x_3^2 x_4 \\
& - 720 \alpha_1^4 \alpha_3 \alpha_2^5 x_2 x_3^2 - 1200 \alpha_1^4 \alpha_3 \alpha_2^6 x_1 x_2^2 - 2475 \alpha_1^4 \alpha_3 x_1^3 \alpha_2^6 \\
& - 450 \alpha_1^4 \alpha_3 \alpha_2^5 x_4^3 + 3450 \alpha_1^4 \alpha_2^7 x_1^2 x_4 - 240 \alpha_1^6 \alpha_2^4 x_1^3 \alpha_3 - 330 \alpha_1^6 x_3 x_1^2 \alpha_3^4 \\
& - 825 \alpha_1^6 x_1^3 \alpha_2^2 \alpha_3^3 + 600 \alpha_1^6 \alpha_2^5 x_1^2 x_4 - 600 \alpha_1^6 \alpha_3^2 x_3^2 \alpha_2^2 + 5070 \alpha_1^3 x_1^3 \alpha_2^4 \alpha_3^4 \\
& + 555 \alpha_1^3 x_1^3 \alpha_2^2 \alpha_3^6 + 6150 \alpha_1^3 x_1^3 \alpha_2^6 \alpha_3^2 + 960 \alpha_1^3 x_1^2 x_3 \alpha_3^7 \\
& - 3220 \alpha_1^3 x_3^3 \alpha_3^4 \alpha_2^2 + 175 \alpha_1^3 x_3^3 \alpha_3^3 \alpha_2^4 - 525 \alpha_1^3 x_3^3 \alpha_3^5 \alpha_2^2 \\
& + 1550 \alpha_1^3 \alpha_2^5 x_4^3 \alpha_3^2 + 990 \alpha_1^4 \alpha_3^2 \alpha_2^4 x_1 x_4^2 + 112 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_2^2 x_4 \\
& - 288 \alpha_1^4 \alpha_3^2 \alpha_2^4 x_1 x_4 x_2 + 48 \alpha_1^4 \alpha_3 \alpha_2^5 x_1 x_3 x_2 - 240 \alpha_1^4 \alpha_3^2 \alpha_2^4 x_2^2 x_3 \\
& - 822 \alpha_1^4 \alpha_3^2 x_3 x_1^2 \alpha_2^4 + 120 \alpha_1^4 \alpha_3 \alpha_2^5 x_1^2 x_4 - 96 \alpha_1^4 \alpha_3 \alpha_2^4 x_4^2 x_3 \\
& - 2115 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_2^2 x_3 - 1550 \alpha_1^4 \alpha_3^3 \alpha_2^4 x_2^2 x_3 - 810 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_1 x_4 x_3 \\
& - 3645 \alpha_1^4 \alpha_3^3 \alpha_2^4 x_1 x_2^2 - 1200 \alpha_1^4 \alpha_2^7 x_1 x_3 x_2 + 600 \alpha_1^4 \alpha_2^7 x_1^2 x_2 \\
& - 5175 \alpha_1^4 \alpha_3^2 x_3^3 \alpha_2^4 - 540 \alpha_1^4 \alpha_3^2 \alpha_2^5 x_2^3 + 1725 \alpha_1^4 \alpha_2^2 x_1 x_3^2 \alpha_3^4 \\
& + 450 \alpha_1^4 \alpha_2^3 x_1 x_3 x_2 \alpha_3^4 + 450 \alpha_1^4 \alpha_2^2 x_2^2 x_3 \alpha_3^5 + 360 \alpha_1^4 \alpha_2 x_1 x_4^2 \alpha_3^4 \\
& - 500 \alpha_1^4 \alpha_2^2 x_1 x_4 x_2 \alpha_3^4 + 375 \alpha_1^4 \alpha_2^3 x_2^2 x_4 \alpha_3^4 + 360 \alpha_1^4 \alpha_2^2 x_1 x_2^2 \alpha_3^5 \\
& + 1234 \alpha_1^4 \alpha_2^3 x_1^2 x_4 \alpha_3^3 + 16175 \alpha_1^4 \alpha_2^5 x_1^2 x_4 \alpha_3^2 - 300 \alpha_1^4 \alpha_2^2 x_1 x_4 x_2 \alpha_3^5 \\
& - 5200 \alpha_1^4 \alpha_2^4 x_1 x_4 x_2 \alpha_3^3 - 432 \alpha_1^4 \alpha_3^2 \alpha_2^3 x_3^2 x_4 + 1580 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_1 x_3 x_2
\end{aligned}$$

$$\begin{aligned}
& -694 \alpha_1^4 \alpha_3^4 \alpha_2^2 x_2^2 x_3^2 + 8 \alpha_1^4 x_3 x_1^2 \alpha_2^6 - 1200 \alpha_1^7 \alpha_2^3 x_1^2 x_4 \alpha_3 \\
& -450 \alpha_1^5 \alpha_2^2 x_1^2 x_3 \alpha_3^4 - 1050 \alpha_1^5 \alpha_2 x_1^2 x_4 \alpha_3^5 + 2250 \alpha_1^5 \alpha_2 x_3^2 x_4 \alpha_3^4 \\
& + 1800 \alpha_1^5 \alpha_2^2 x_1 x_4 x_2 \alpha_3^4 + 40 \alpha_1^7 \alpha_3^3 x_3 x_1^2 + 120 \alpha_1^7 \alpha_3^2 \alpha_2^2 x_1^3 \\
& + 1725 \alpha_1^5 x_1^3 \alpha_2^2 \alpha_3^4 + 960 \alpha_1^5 x_1^2 x_3 \alpha_3^5 - 72 \alpha_1^5 \alpha_3^2 x_3^3 \alpha_2^2 - 600 \alpha_1^5 x_3 x_1^2 \alpha_2^6 \\
& + 360 \alpha_1^5 \alpha_3^3 \alpha_2^3 x_2^3 + 1275 \alpha_1^5 \alpha_3^3 x_3^2 \alpha_2^2 + 100 \alpha_1^5 \alpha_2^5 x_4^3 + 120 \alpha_1^5 x_1^3 \alpha_2^6 \\
& - 330 \alpha_1^5 \alpha_3^4 x_3^3 - 600 \alpha_1^4 x_3^3 \alpha_2^6 + 40 \alpha_1^6 \alpha_3^3 x_3^3 - 1340 \alpha_1^3 x_3^3 \alpha_3^6 + 8 \alpha_1^3 x_3^3 \alpha_2^6 \\
& + 825 \alpha_1^3 x_1^3 \alpha_2^8 + 375 \alpha_1^3 \alpha_2^7 x_4^3 + 960 \alpha_1^2 x_3^3 \alpha_3^7 + 2430 \alpha_1 \alpha_2^9 x_1 x_4 x_3 \\
& - 14850 \alpha_1 \alpha_3 \alpha_2^8 x_2 x_4 x_3 + 518 \alpha_1 \alpha_3 \alpha_2^8 x_2^2 x_3 + 4688 \alpha_1 \alpha_2^6 x_2^2 x_3 \alpha_3^3 \\
& - 1380 \alpha_1 \alpha_2^5 x_2^2 x_4 \alpha_3^4 + 600 \alpha_1 \alpha_2^7 x_2^2 x_4 \alpha_3^3 - 88 \alpha_1 \alpha_2^3 x_2^2 x_4 \alpha_3^6 \\
& + 2340 \alpha_1 \alpha_2^7 x_2^2 x_4 \alpha_3^2 - 60 \alpha_1 \alpha_2^4 x_1 x_4 \alpha_3^5 + 180 \alpha_1 \alpha_2^5 x_2^2 x_4 \alpha_3^4 \\
& + 1875 \alpha_1 \alpha_2^8 x_1 x_4^2 \alpha_3 - 630 \alpha_1 \alpha_2^6 x_1 x_4^2 \alpha_3^3 + 2176 \alpha_1 \alpha_2^6 x_1 x_4 x_2 \alpha_3^3 \\
& + 2600 \alpha_1 \alpha_2^{10} x_1 x_4 x_2 - 2854 \alpha_1 \alpha_2^7 x_2^2 x_4 \alpha_3^2 - 775 \alpha_1 \alpha_2^9 x_2^2 x_4 \alpha_3 \\
& + 12555 \alpha_1 \alpha_2^8 x_1 x_2^2 \alpha_3^2 + 75 \alpha_1 \alpha_2^8 x_1 x_3^2 \alpha_3 - 3495 \alpha_1 \alpha_2^6 x_1 x_3^2 \alpha_3^3 \\
& - 60 \alpha_1 \alpha_2^2 x_1 x_3^2 \alpha_3^7 - 80 \alpha_1 \alpha_2 x_1 x_3 x_2 \alpha_3^8 - 2900 \alpha_1 \alpha_2^7 x_1 x_3 x_2 \alpha_3^3 \\
& - 6250 \alpha_1 \alpha_2^9 x_1 x_3 x_2 \alpha_3 - 3612 \alpha_1 \alpha_2^5 x_1 x_3 x_2 \alpha_3^4 - 1304 \alpha_1 \alpha_2^3 x_1 x_3 x_2 \alpha_3^6 \\
& + 88 \alpha_1 \alpha_2^2 x_2^2 x_3 \alpha_3^7 + 1556 \alpha_1 \alpha_2^4 x_2^2 x_3 \alpha_3^5 - 750 \alpha_1 \alpha_2^6 x_2^2 x_3 \alpha_3^4 \\
& + 3800 \alpha_1 \alpha_2^8 x_1 x_4 x_2 \alpha_3^2 - 1170 \alpha_1 \alpha_2^4 x_1 x_3^2 \alpha_3^5 - 2000 \alpha_1 \alpha_2^8 x_2^2 x_3 \alpha_3^2 \\
& + 1140 \alpha_1 \alpha_2^6 x_1 x_2^2 \alpha_3^4 + 80 \alpha_1 \alpha_2^2 x_1 x_4 x_2 \alpha_3^7 + 844 \alpha_1 \alpha_2^8 x_1 x_4 x_2 \alpha_3 \\
& + 1144 \alpha_1 \alpha_2^4 x_1 x_4 x_2 \alpha_3^5 + 4 \alpha_1 \alpha_2^7 x_1 x_3 x_2 \alpha_3^2 + 208 \alpha_1 \alpha_2^9 x_1 x_3 x_2 - 72 \alpha_1 \alpha_2^9 x_2^2 x_4 \\
& - 120 \alpha_1 \alpha_2^8 x_4^2 x_3 - 600 \alpha_1 \alpha_2^{10} x_1^2 x_3 + 2655 \alpha_1 \alpha_2^9 x_2 x_3^2 - 1100 \alpha_1 \alpha_2^{10} x_2^2 x_3 \\
& - 7920 \alpha_1 \alpha_3 \alpha_2^9 x_2^3 + 1482 \alpha_1 \alpha_2^7 x_3^2 x_4 \alpha_3 + 5025 \alpha_1 \alpha_2^7 x_3^2 x_4 \alpha_3^2 \\
& + 5688 \alpha_1 \alpha_2^3 x_3^2 x_4 \alpha_3^5 + 870 \alpha_1 \alpha_2^2 x_3^2 x_4 \alpha_3^7 + 9528 \alpha_1 \alpha_2^5 x_3^2 x_4 \alpha_3^3 \\
& + 1950 \alpha_1 \alpha_2^5 x_3^2 x_4 \alpha_3^4 + 2100 \alpha_1 \alpha_2^5 x_1 x_4 x_3 \alpha_3^4 + 4620 \alpha_1 \alpha_2^7 x_1 x_4 x_3 \alpha_3^2 \\
& + 120 \alpha_1 \alpha_2^3 x_1 x_4 x_3 \alpha_3^6 - 5925 \alpha_1 \alpha_2^8 x_4^2 x_3 \alpha_3 - 2988 \alpha_1 \alpha_2^4 x_4^2 x_3 \alpha_3^4 \\
& - 3150 \alpha_1 \alpha_2^6 x_4^2 x_3 \alpha_3^3 - 2664 \alpha_1 \alpha_2^6 x_4^2 x_3 \alpha_3^2 - 702 \alpha_1 \alpha_2^2 x_4^2 x_3 \alpha_3^6 \\
& + 3724 \alpha_1 \alpha_2^4 x_1^2 x_3 \alpha_3^5 + 780 \alpha_1 \alpha_2^2 x_1^2 x_3 \alpha_3^7 + 5242 \alpha_1 \alpha_2^6 x_1^2 x_3 \alpha_3^3 \\
& + 700 \alpha_1 \alpha_2^6 x_1^2 x_3 \alpha_3^4 + 1475 \alpha_1 \alpha_2^8 x_1^2 x_3 \alpha_3^2 + 18 \alpha_1 \alpha_2^8 x_1^2 x_3 \alpha_3 \\
& - 1300 \alpha_1 \alpha_2^7 x_1^2 x_4 \alpha_3^3 - 3598 \alpha_1 \alpha_2^7 x_1^2 x_4 \alpha_3^2 - 2525 \alpha_1 \alpha_2^9 x_1^2 x_4 \alpha_3
\end{aligned}$$

$$\begin{aligned}
& -700 \alpha_1 \alpha_2^3 x_1^2 x_4 \alpha_3^6 - 40 \alpha_1 \alpha_2 x_1^2 x_4 \alpha_3^8 - 2790 \alpha_1 \alpha_2^5 x_1^2 x_4 \alpha_3^4 \\
& + 180 \alpha_1 \alpha_2^3 x_2 x_3^2 \alpha_3^6 + 3510 \alpha_1 \alpha_2^5 x_2 x_3^2 \alpha_3^4 - 6300 \alpha_1 \alpha_2^6 x_4 x_3 x_2 \alpha_3^3 \\
& - 360 \alpha_1 \alpha_2^4 x_4 x_3 x_2 \alpha_3^5 + 11610 \alpha_1 \alpha_2^7 x_2 x_3^2 \alpha_3^2 - 600 \alpha_1 \alpha_2^5 x_1^2 x_2 \alpha_3^5 \\
& - 7545 \alpha_1 \alpha_2^7 x_1^2 x_2 \alpha_3^3 - 9390 \alpha_1 \alpha_2^9 x_1^2 x_2 \alpha_3 - 2025 \alpha_1 x_3^3 \alpha_2^8 \alpha_3 \\
& - 2225 \alpha_1 x_3^3 \alpha_2^6 \alpha_3^3 - 766 \alpha_1 \alpha_2^7 x_4^3 \alpha_3 - 56 \alpha_1 \alpha_2^5 x_4^3 \alpha_3^3 + 162 \alpha_1 \alpha_2^3 x_4^3 \alpha_3^5 \\
& + 1550 \alpha_1 \alpha_2^7 x_4^3 \alpha_3^2 - 810 \alpha_1 \alpha_2^7 x_2^3 \alpha_3^3 + 8 \alpha_1 \alpha_2^9 x_1^2 x_4 - 17775 \alpha_1^2 \alpha_3 \alpha_2^2 x_1 x_2^8 \\
& + 1550 \alpha_1^2 \alpha_3 \alpha_2^8 x_2^2 x_3 + 782 \alpha_1^2 \alpha_2^7 x_1^2 x_4 \alpha_3 + 344 \alpha_1^2 \alpha_3 \alpha_2^7 x_2^2 x_4 \\
& + 5940 \alpha_1^2 \alpha_3^2 \alpha_2^7 x_2^3 + 6525 \alpha_1 \alpha_2^{10} x_1 x_2^2 - 495 \alpha_1 \alpha_2^9 x_2 x_4^2 + 3210 \alpha_1 x_1^3 \alpha_2^8 \alpha_3^2 \\
& + 1665 \alpha_1 x_1^3 \alpha_2^6 \alpha_3^4 + 120 \alpha_1 x_1^3 \alpha_2^4 \alpha_3^6 + 40 \alpha_1 x_1^2 x_3 \alpha_3^9 - 4982 \alpha_1 x_3^3 \alpha_3^4 \alpha_2^4 \\
& - 2548 \alpha_1 x_3^3 \alpha_3^6 \alpha_2^2 - 500 \alpha_1 x_3^3 \alpha_3^5 \alpha_2^4 - 900 \alpha_1 \alpha_2^9 x_3^2 x_4 - 492 \alpha_1 x_3^3 \alpha_2^6 \alpha_3^2 \\
& + 2610 \alpha_1^2 \alpha_2^4 x_2 x_4 x_3 \alpha_3^4 + 360 \alpha_1^2 \alpha_2^8 x_2 x_4 x_3 - 1485 \alpha_1^2 \alpha_2^3 x_2^2 x_3^5 \alpha_3 \\
& + 9950 \alpha_1^2 \alpha_2^7 x_1 x_3 x_2 \alpha_3^2 - 10125 \alpha_1^2 \alpha_2^5 x_2 x_3^2 \alpha_3^3 - 3218 \alpha_1^2 x_3 x_1^2 \alpha_3^6 \alpha_2^2 \\
& - 5450 \alpha_1^2 \alpha_2^9 x_1 x_3 x_2 + 21330 \alpha_1^2 \alpha_2^7 x_1^2 x_2 \alpha_3^2 - 32 \alpha_1^2 \alpha_2^8 x_1 x_4 x_2 \\
& - 92 \alpha_1^2 \alpha_3 \alpha_2^7 x_1 x_3 x_2 - 2058 \alpha_1^2 \alpha_3^2 \alpha_2^6 x_2^2 x_3 - 390 \alpha_1^2 \alpha_2^8 x_1 x_4^2 \\
& + 11880 \alpha_1^2 \alpha_2^6 x_2 x_4 x_3 \alpha_3^2 + 36 \alpha_1^2 \alpha_3^6 \alpha_2^2 x_4^2 x_3 - 5070 \alpha_1^2 \alpha_3 \alpha_2^7 x_1 x_4 x_3 \\
& - 900 \alpha_1^2 \alpha_2^5 x_2^2 x_4 \alpha_3^4 + 558 \alpha_1^2 \alpha_2^3 x_2^2 x_4 \alpha_3^5 - 2010 \alpha_1^2 x_3 x_1^2 \alpha_2^6 \alpha_3^2 \\
& - 1035 \alpha_1^2 \alpha_2^5 x_2 x_4^2 \alpha_3^3 + 375 \alpha_1^2 \alpha_2^4 x_1 x_4^2 \alpha_3^4 - 420 \alpha_1^2 \alpha_2^6 x_1 x_4^2 \alpha_3^2 \\
& - 500 \alpha_1^2 \alpha_2^2 x_1 x_4 x_2 \alpha_3^6 - 5200 \alpha_1^2 \alpha_2^6 x_1 x_4 x_2 \alpha_3^3 + 425 \alpha_1^2 \alpha_2^7 x_2^2 x_4 \alpha_3^2 \\
& + 2168 \alpha_1^2 \alpha_2^5 x_2^2 x_4 \alpha_3^3 - 11475 \alpha_1^2 \alpha_2^6 x_1 x_2^2 \alpha_3^3 - 480 \alpha_1^2 \alpha_2^4 x_1 x_2^2 \alpha_3^5 \\
& + 4000 \alpha_1^2 \alpha_2^6 x_2^2 x_3 \alpha_3^3 - 6800 \alpha_1^2 \alpha_2^8 x_1 x_4 x_2 \alpha_3 - 2372 \alpha_1^2 \alpha_2^4 x_1 x_4 x_2 \alpha_3^4 \\
& - 2460 \alpha_1^2 \alpha_2^6 x_1 x_4 x_2 \alpha_3^2 + 56 \alpha_1^2 \alpha_2^7 x_4^3 + 180 \alpha_1^2 \alpha_2^9 x_2^3 - 2725 \alpha_1^2 x_3^3 \alpha_2^8 \\
& + 165 \alpha_1 x_1^3 \alpha_2^{10} - 330 \alpha_1 x_3^3 \alpha_3^8 + 800 \alpha_1 \alpha_2^9 x_4^3 + 104 \alpha_1 x_3^3 \alpha_2^8 \\
& + 375 \alpha_1^2 \alpha_2^7 x_3^2 x_4 \alpha_3 - 7488 \alpha_1^2 \alpha_2^3 x_3^2 x_4 \alpha_3^4 - 1350 \alpha_1^2 \alpha_2^3 x_3^2 x_4 \alpha_3^5 \\
& - 5250 \alpha_1^2 \alpha_2^5 x_3^2 x_4 \alpha_3^3 - 2010 \alpha_1^2 \alpha_2^2 x_3^2 x_4 \alpha_3^6 - 5370 \alpha_1^2 \alpha_2^5 x_1 x_4 x_3 \alpha_3^3 \\
& - 990 \alpha_1^2 \alpha_2^3 x_1 x_4 x_3 \alpha_3^5 + 1194 \alpha_1^2 \alpha_2^4 x_4^2 x_3 \alpha_3^3 + 2850 \alpha_1^2 \alpha_2^4 x_4^2 x_3 \alpha_3^4 \\
& + 8700 \alpha_1^2 \alpha_2^6 x_4^2 x_3 \alpha_3^2 + 864 \alpha_1^2 \alpha_2^2 x_4^2 x_3 \alpha_3^5 + 4110 \alpha_1^2 \alpha_2^4 x_1 x_3^2 \alpha_3^4 \\
& + 4425 \alpha_1^2 \alpha_2^6 x_1 x_3^2 \alpha_3^2 + 555 \alpha_1^2 \alpha_2^2 x_1 x_3^2 \alpha_3^6 + 580 \alpha_1^2 \alpha_2 x_1 x_3 x_2 \alpha_3^7 \\
& + 3500 \alpha_1^2 \alpha_2^5 x_1 x_3 x_2 \alpha_3^3 + 3840 \alpha_1^2 \alpha_2^3 x_1 x_3 x_2 \alpha_3^5 + 3700 \alpha_1^2 \alpha_2^5 x_1 x_3 x_2 \alpha_3^4
\end{aligned}$$



$$\begin{aligned}
& -3922 \alpha_1^2 \alpha_2^4 x_2^2 x_3^4 \alpha_3^4 + 1050 \alpha_1^2 \alpha_2^4 x_2^2 x_3^4 \alpha_3^5 - 646 \alpha_1^2 \alpha_2^2 x_2^2 x_3^6 \\
& + 1150 \alpha_1^2 \alpha_2^8 x_1^2 x_3^2 \alpha_3^3 + 5725 \alpha_1^2 \alpha_2^7 x_1^2 x_4^2 \alpha_3^2 + 290 \alpha_1^2 \alpha_2 x_1^2 x_4^7 \alpha_3 \\
& + 1700 \alpha_1^2 \alpha_2^5 x_1^2 x_4^4 \alpha_3^4 + 7665 \alpha_1^2 \alpha_2^5 x_1^2 x_2^4 \alpha_3^4 + 3268 \alpha_1^2 x_3^3 \alpha_3^3 \alpha_2^4 \\
& + 4416 \alpha_1^2 x_3^3 \alpha_3^5 \alpha_2^2 + 858 \alpha_1^2 \alpha_2^5 x_4^3 \alpha_3^2 - 1825 \alpha_1^2 \alpha_2^7 x_4^3 \alpha_3 \\
& - 1650 \alpha_1^2 \alpha_2^5 x_4^3 \alpha_3^3 + 138 \alpha_1^2 \alpha_2^3 x_4^3 \alpha_3^4 + 270 \alpha_1^2 \alpha_2^5 x_2^3 \alpha_3^4 \\
& + 3875 \alpha_1^2 \alpha_2^9 x_1^2 x_4^2 + 88 \alpha_1^2 x_3 x_1^2 \alpha_2^8 - 2460 \alpha_1^2 \alpha_2^8 x_1^3 \alpha_3 - 6180 \alpha_1^2 \alpha_2^6 x_1^3 \alpha_3^3 \\
& + 4485 \alpha_1^2 \alpha_2^9 x_1^2 x_2^2 + 2575 \alpha_1^2 \alpha_2^9 x_2^2 x_4^2 + 3525 \alpha_1^2 \alpha_2^8 x_4^2 x_3^2 + 825 \alpha_1^2 \alpha_2^8 x_1^2 x_3^2 \\
& - 30 \alpha_1^2 \alpha_3 x_3^3 \alpha_2^6 - 16 \alpha_1^2 \alpha_2^8 x_2^2 x_3^2 - 48 \alpha_1^2 \alpha_2^7 x_3^2 x_4^2 - 4554 \alpha_1^2 \alpha_2^5 x_3^2 x_4^2 \alpha_3^2 \\
& - 9525 \alpha_1^5 \alpha_2^3 x_1^2 x_4^3 \alpha_3^3 + 24 \alpha_1^5 \alpha_3 x_3 x_1^2 \alpha_2^4 + 120 \alpha_1^5 \alpha_3^3 \alpha_2 x_3^2 x_4^2 \\
& + 72 \alpha_1^5 \alpha_3^2 \alpha_2^2 x_4^2 x_3^2 + 80 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_1 x_4 x_2 - 144 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_1^2 x_4^2 \\
& + 974 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_1^2 x_3^2 + 112 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_2^2 x_3^2 + 240 \alpha_1^5 \alpha_3^2 \alpha_2^4 x_1^2 x_2^2 \\
& + 960 \alpha_1^4 x_3^3 \alpha_3^5 - 180 \alpha_2^5 x_2 x_3^2 \alpha_3^5 + 2250 \alpha_1^4 \alpha_2^2 x_4^2 x_3^2 \alpha_3^4 \\
& - 324 \alpha_1^4 \alpha_3^3 \alpha_2^2 x_4^2 x_3^2 - 14500 \alpha_1^4 \alpha_3 \alpha_2^6 x_1 x_4 x_2 - 450 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_2 x_4^2 \\
& - 1200 \alpha_1^6 \alpha_3 \alpha_2^3 x_3^2 x_4^2 + 4462 \alpha_1^3 \alpha_2^4 x_1^2 x_3^2 \alpha_3^3 - 2595 \alpha_1^3 \alpha_2^3 x_1^2 x_2 \alpha_3^5 \\
& - 18690 \alpha_1^3 \alpha_2^5 x_1^2 x_2 \alpha_3^3 + 5100 \alpha_1^3 \alpha_2^5 x_3^2 x_4^2 \alpha_3^2 + 3582 \alpha_1^3 \alpha_2^3 x_3^2 x_4^2 \alpha_3^3 \\
& + 2010 \alpha_1^3 \alpha_2^3 x_3^2 x_4^2 \alpha_3^5 + 2925 \alpha_1^3 \alpha_2^3 x_3^2 x_4^2 \alpha_3^4 + 150 \alpha_1^3 \alpha_2^3 x_3^2 x_4^2 \alpha_3^6 \\
& + 1920 \alpha_1^3 \alpha_2^3 x_1 x_4 x_3 \alpha_3^4 - 6525 \alpha_1^3 \alpha_2^4 x_4^2 x_3^2 \alpha_3^3 - 750 \alpha_1^3 \alpha_2^2 x_4^2 x_3^2 \alpha_3^5 \\
& - 30 \alpha_1^3 \alpha_2^2 x_4^2 x_3^2 \alpha_3^4 - 1515 \alpha_1^3 \alpha_2^2 x_1 x_3^2 \alpha_3^5 - 5175 \alpha_1^3 \alpha_2^4 x_1 x_3^2 \alpha_3^3 \\
& - 1340 \alpha_1^3 \alpha_2^3 x_1 x_3 x_2 \alpha_3^6 - 5150 \alpha_1^3 \alpha_2^5 x_1 x_3 x_2 \alpha_3^3 - 1500 \alpha_1^3 \alpha_2^3 x_1 x_3 x_2 \alpha_3^5 \\
& - 2600 \alpha_1^3 \alpha_2^4 x_2^2 x_3^2 \alpha_3^4 - 1950 \alpha_1^7 \alpha_2 x_1^2 x_4^2 \alpha_3^3 + 1200 \alpha_1^7 \alpha_3^2 \alpha_2^2 x_1 x_4 x_2 \\
& + 500 \alpha_2^{11} x_1^2 x_4^2 - 200 \alpha_2^8 x_1^2 x_3^2 \alpha_3^3 - 1466 \alpha_2^6 x_1^2 x_3^2 \alpha_3^4 - 450 \alpha_2^4 x_1^2 x_3^2 \alpha_3^6 \\
& - 40 \alpha_2^2 x_1^2 x_3^2 \alpha_3^8 - 1510 \alpha_2^8 x_1^2 x_3^2 \alpha_3^2 + 1144 \alpha_2^7 x_1^2 x_4^2 \alpha_3^3 + 1188 \alpha_2^9 x_1^2 x_4^2 \alpha_3^2 \\
& + 40 \alpha_2^3 x_1^2 x_4^2 \alpha_3^7 + 410 \alpha_2^5 x_1^2 x_4^2 \alpha_3^5 + 350 \alpha_2^9 x_1^2 x_4^2 \alpha_3^2 + 360 \alpha_2^6 x_4 x_3 x_2 \alpha_3^4 \\
& + 3690 \alpha_2^8 x_4 x_3 x_2 \alpha_3^2 - 350 \alpha_2^{10} x_1^2 x_3^2 \alpha_3 - 2025 \alpha_2^7 x_2 x_3^2 \alpha_3^3 - 4545 \alpha_2^9 x_2 x_3^2 \alpha_3^2 \\
& + 40 x_3^3 \alpha_3^9 + 2475 \alpha_2^9 x_1^2 x_2^2 \alpha_3^2 + 300 \alpha_2^7 x_1^2 x_2^2 \alpha_3^4 - 60 x_1^3 \alpha_2^6 \alpha_3^5 \\
& - 555 x_1^3 \alpha_2^8 \alpha_3^3 - 580 \alpha_1^5 \alpha_3^4 \alpha_2 x_1 x_3 x_2 - 540 \alpha_1^5 \alpha_3^4 \alpha_2^2 x_1 x_2^2 \\
& + 1200 \alpha_1^5 \alpha_2^6 x_1 x_4 x_2 + 11300 \alpha_1^5 \alpha_3^2 \alpha_2^4 x_1 x_4 x_2 - 240 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_1 x_4 x_3 \\
& + 2400 \alpha_1^5 \alpha_3 \alpha_2^5 x_1 x_3 x_2 + 360 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_2 x_4^2 + 850 \alpha_1^5 \alpha_3^2 \alpha_2^4 x_2^2 x_3^2
\end{aligned}$$

$$\begin{aligned}
& -5325 \alpha_1^5 \alpha_3^2 x_3 x_1^2 \alpha_2^4 - 8850 \alpha_1^5 \alpha_3 \alpha_2^5 x_1 x_4 - 1000 \alpha_1^5 \alpha_3 \alpha_2^5 x_2^2 x_4 \\
& - 360 \alpha_1^5 \alpha_3 \alpha_2^4 x_1 x_4^2 - 1200 \alpha_1^5 \alpha_3 \alpha_2^5 x_1 x_2 - 1200 \alpha_1^5 \alpha_3 \alpha_2^4 x_4^2 x_3 \\
& - 240 \alpha_1^5 \alpha_3 x_1 x_3^2 \alpha_2^4 - 525 \alpha_1^4 \alpha_2^2 x_1 x_3 \alpha_3^5 - 3510 \alpha_1^4 \alpha_2^2 x_1 x_3 \alpha_3^4 \\
& + 150 \alpha_1^4 \alpha_2^2 x_1 x_4 \alpha_3^6 + 670 \alpha_1^4 \alpha_2 x_1 x_4 \alpha_3^5 + 4275 \alpha_1^4 \alpha_2^3 x_1 x_4 \alpha_3^4 \\
& + 850 \alpha_1^4 \alpha_2^4 x_1 x_3 \alpha_3^3 + 5700 \alpha_1^4 \alpha_2^3 x_1 x_2 \alpha_3^4 - 6825 \alpha_1^4 \alpha_2^3 x_3 x_4 \alpha_3^3 \\
& - 1050 \alpha_1^4 \alpha_2 x_3 x_4 \alpha_3^5 - 870 \alpha_1^4 \alpha_2 x_3 x_4 \alpha_3^4 + 1340 \alpha_1^4 \alpha_2 x_1 x_3 x_2 \alpha_3^5 \\
& + 600 \alpha_2^2 x_1 x_4 \alpha_3^2 \alpha_1^8 + 200 x_3^3 \alpha_2^3 \alpha_3^6 - 1050 \alpha_2^{10} x_1 x_3^2 + 1500 \alpha_2^{10} x_4^2 x_3 \\
& + 700 x_3^3 \alpha_2^8 \alpha_3^2 + 1828 x_3^3 \alpha_3^5 \alpha_2^4 + 490 x_3^3 \alpha_3^7 \alpha_2^2 + 240 \alpha_2^9 x_3^2 x_4 + 500 x_3^3 \alpha_2^{10} \\
& - 120 \alpha_2 x_3^2 x_4 \alpha_3^8 - 476 x_3^3 \alpha_2^8 \alpha_3^3 + 2066 x_3^3 \alpha_2^6 \alpha_3^3 - 1350 \alpha_2^3 x_3^2 x_4 \alpha_3^6 \\
& - 4530 \alpha_2^7 x_3^2 x_4 \alpha_3^2 - 1650 \alpha_2^9 x_3^2 x_4 \alpha_3 - 750 \alpha_2^7 x_3^2 x_4 \alpha_3^3 - 4398 \alpha_2^5 x_3^2 x_4 \alpha_3^4 \\
& - 1170 \alpha_2^9 x_1 x_4 x_3 \alpha_3 - 1110 \alpha_2^7 x_1 x_4 x_3 \alpha_3^3 - 120 \alpha_2^5 x_1 x_4 x_3 \alpha_3^5 \\
& + 1182 \alpha_2^4 x_4 x_3 \alpha_3^5 + 1980 \alpha_2^8 x_4 x_3 \alpha_3^2 + 2844 \alpha_2^6 x_4 x_3 \alpha_3^3 + 1050 \alpha_2^8 x_4 x_3 \alpha_3^2 \\
& + 120 \alpha_2^2 x_4 x_3 \alpha_3^7 + 900 \alpha_2^8 x_1 x_3 \alpha_3^2 - 322 \alpha_2^5 x_4 \alpha_3^4 + 1112 \alpha_2^7 x_1 x_3 x_2 \alpha_3^3 \\
& - 792 \alpha_2^9 x_1 x_3 x_2 \alpha_3 + 80 \alpha_2^3 x_1 x_3 x_2 \alpha_3^7 + 1000 \alpha_2^{11} x_1 x_3 x_2 + 724 \alpha_2^5 x_1 x_3 x_2 \alpha_3^5 \\
& + 700 \alpha_2^9 x_1 x_3 x_2 \alpha_3^2 + 6450 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_3 x_4 + 360 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_2 x_3^2 \\
& + 2250 \alpha_1^5 \alpha_3^3 \alpha_2^3 x_1 x_3 x_2 + 450 \alpha_1^5 \alpha_3^4 \alpha_2^2 x_2 x_3 - 4005 \alpha_1^5 \alpha_3^3 \alpha_2^3 x_1 x_2 \\
& - 825 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_1 x_3^2 - 2250 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_4 x_3 - 540 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_1 x_4^2 \\
& - 1275 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_2 x_4 + 75 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_4^3 + 1200 \alpha_1^5 \alpha_3^3 \alpha_2^4 \\
& + 600 \alpha_1^5 \alpha_2^5 x_3 x_4 - 1515 \alpha_1^4 x_1 \alpha_2^3 \alpha_3^2 - 1340 \alpha_1^4 x_1 x_3 \alpha_3^6 \\
& - 5580 \alpha_1^4 x_1 \alpha_2^3 \alpha_3^4 - 450 \alpha_1^4 x_3 \alpha_3^4 \alpha_2^2 - 525 \alpha_1^4 \alpha_2^3 x_4 \alpha_3^3 \\
& + 934 \alpha_1^4 \alpha_3^3 x_3 \alpha_2^2 + 72 \alpha_1^4 \alpha_3^2 \alpha_2^3 x_4^3 + 24 \alpha_1^4 \alpha_3^3 \alpha_2^4 + 450 \alpha_1^4 \alpha_2^6 x_4^2 x_3 \\
& + 120 \alpha_1^4 \alpha_2^6 x_1 x_3^2 - 450 \alpha_1^4 \alpha_3^4 \alpha_2^3 x_2^3 + 120 \alpha_1^4 \alpha_2^6 x_1 x_4^2 + 500 \alpha_1^4 \alpha_2^7 x_2^2 x_4 \\
& + 2475 \alpha_1^5 \alpha_3^2 x_1 \alpha_2^3 - 290 \alpha_1^5 \alpha_2^2 x_1 x_4 \alpha_3^4 - 600 \alpha_1^7 x_3 x_1 \alpha_3^2 \alpha_2^2 \\
& + 600 \alpha_1^7 \alpha_3^2 \alpha_2 x_3^2 x_4 - 144 \alpha_1^5 \alpha_2^3 x_1 x_3 x_2 \alpha_3^2 - 910 \alpha_2^6 x_2^2 x_3 \alpha_3^4 \\
& - 1906 \alpha_2^8 x_2 x_3 \alpha_3^2 - 88 \alpha_2^4 x_2 x_3 \alpha_3^6 + 150 \alpha_2^{10} x_2 x_3 \alpha_3^2 + 150 \alpha_2^8 x_2 x_3 \alpha_3^3 \\
& + 615 \alpha_2^6 x_1 x_3 \alpha_3^4 + 60 \alpha_2^4 x_1 x_3 \alpha_3^6 + 80 \alpha_2^9 x_4^3 + 88 \alpha_2^5 x_2 x_4 \alpha_3^5 \\
& + 822 \alpha_2^7 x_2 x_4 \alpha_3^3 - 450 \alpha_2^9 x_4^3 \alpha_3 - 322 \alpha_2^7 x_4^3 \alpha_3^2 - 40 \alpha_2^3 x_4^3 \alpha_3^6 \\
& - 1395 \alpha_2^9 x_2 x_4 \alpha_3 - 180 \alpha_2^7 x_2 x_4 \alpha_3^3 + 315 \alpha_2^8 x_1 x_4 \alpha_3^2 + 60 \alpha_2^6 x_1 x_4 \alpha_3^4
\end{aligned}$$

$$\begin{aligned}
& -1050 \alpha_2^{10} x_1 x_4^2 - 644 \alpha_2^8 x_1 x_4 x_2 \alpha_3^2 - 644 \alpha_2^6 x_1 x_4 x_2 \alpha_3^4 - 900 \alpha_2^{10} x_1 x_4 x_2 \alpha_3 \\
& + 160 \alpha_2^{10} x_1 x_4 x_2 + 1268 \alpha_2^9 x_2^2 x_4 \alpha_3 + 500 \alpha_2^{11} x_2^2 x_4 - 100 \alpha_2^9 x_2^2 x_4 \alpha_3^2 \\
& - 600 \alpha_2^8 x_1 x_2 \alpha_3^3 - 4425 \alpha_2^{10} x_1 x_2 \alpha_3 + 450 \alpha_2^9 x_2^3 \alpha_3^2 - 80 \alpha_2^4 x_1 x_4 x_2 \alpha_3^6 \\
& + 6300 \alpha_2^{10} x_4 x_3 x_2 + 80 \alpha_2^{10} x_1^2 x_3 - 585 x_1^3 \alpha_2^{10} \alpha_3 + 1050 \alpha_2^{11} x_1^2 x_2 \\
& + 80 \alpha_2^{10} x_2^2 x_3 + 3150 \alpha_2^{11} x_2^3) \beta^2 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)^2 (\alpha_1^4 - 4 \alpha_1^3 \alpha_3 + 8 \alpha_1^2 \alpha_2^2 + 6 \alpha_1^2 \alpha_3^2 - 4 \alpha_1 \alpha_3^3 - 16 \alpha_2^2 \alpha_1 \alpha_3 \\
& + 16 \alpha_2^4 + 8 \alpha_3^2 \alpha_2^2 + \alpha_3^4), \frac{1}{24} (-1000 \alpha_2^{11} x_1 x_4 x_2 - 1500 x_4 x_3^2 \alpha_2^{10} \\
& - 40 \alpha_2^3 x_1^2 x_3 \alpha_3^7 - 650 \alpha_2^{10} x_2^2 x_4 \alpha_3 - 50 \alpha_2^8 x_2^2 x_4 \alpha_3^3 + 88 \alpha_2^6 x_2^2 x_4 \alpha_3^4 \\
& + 1080 \alpha_2^8 x_2^2 x_4 \alpha_3^2 + 120 \alpha_2^6 x_2^2 x_4 \alpha_3^4 - 180 \alpha_1 \alpha_2^5 x_1 x_4 \alpha_3^4 \\
& + 792 \alpha_1 \alpha_2^5 x_1 x_4 x_2 \alpha_3^4 - 900 \alpha_1 \alpha_2^7 x_1 x_4 x_2 \alpha_3^3 + 2675 \alpha_1 \alpha_2^8 x_2^2 x_4 \alpha_3^2 \\
& + 2790 \alpha_1 \alpha_2^5 x_1^2 x_3 \alpha_3^4 - 48 \alpha_1 \alpha_2^9 x_1 x_4 x_2 + 1395 \alpha_2^9 x_1 x_4^2 \alpha_3 + 180 \alpha_2^7 x_1 x_4^2 \alpha_3^3 \\
& - 500 \alpha_2^{10} x_4^3 - 80 x_1^2 x_4 \alpha_2^{10} - 210 \alpha_2^8 x_2^3 \alpha_3^3 - 1515 \alpha_2^{10} x_2^3 \alpha_3 \\
& - 410 \alpha_2^5 x_1^2 x_3 \alpha_3^5 - 150 x_1^2 x_4 \alpha_2^8 \alpha_3^3 - 180 \alpha_2^7 x_1^3 \alpha_3^4 - 80 \alpha_2^{10} x_2^2 x_4 \\
& - 80 \alpha_2^5 x_1 x_4 x_2 \alpha_3^5 + 632 \alpha_2^9 x_1 x_4 x_2 \alpha_3 + 200 \alpha_2^9 x_1 x_4 x_2 \alpha_3^2 - 468 \alpha_2^7 x_1 x_4 x_2 \alpha_3^3 \\
& - 1845 \alpha_2^9 x_1^3 \alpha_3^2 + 638 \alpha_2^8 x_2^2 x_4 \alpha_3^2 - 1144 \alpha_2^7 x_1^2 x_3 \alpha_3^3 - 1182 x_4 x_3^2 \alpha_3^5 \alpha_2^4 \\
& - 120 x_4 x_3^2 \alpha_3^7 \alpha_2^2 + 150 x_4 x_3^2 \alpha_2^6 \alpha_3^4 - 450 x_4 x_3^2 \alpha_2^8 \alpha_3^2 - 2844 x_4 x_3^2 \alpha_2^6 \alpha_3^3 \\
& - 1980 x_4 x_3^2 \alpha_2^8 \alpha_3 + 100 \alpha_2^8 x_4^3 \alpha_3^2 - 120 x_1^2 x_2 \alpha_2^6 \alpha_3^5 - 930 x_1^2 x_2 \alpha_2^8 \alpha_3^3 \\
& + 120 \alpha_2^3 x_4^2 x_3 \alpha_3^6 + 1050 \alpha_2^{10} x_2^2 x_4 + 2025 \alpha_2^7 x_1 x_3^2 \alpha_3^3 - 300 \alpha_2^7 x_4^2 x_3 \alpha_3^3 \\
& + 150 \alpha_2^9 x_4^2 x_3 \alpha_3 + 966 \alpha_2^7 x_4^2 x_3 \alpha_3^2 + 966 \alpha_2^5 x_4^2 x_3 \alpha_3^4 + 40 x_1^2 x_4 \alpha_2^4 \alpha_3^6 \\
& - 150 x_1^2 x_4 \alpha_2^{10} \alpha_3 + 180 \alpha_2^5 x_1 x_3^2 \alpha_3^5 + 322 x_1^2 x_4 \alpha_2^8 \alpha_3^2 + 4545 \alpha_2^9 x_1 x_3^2 \alpha_3 \\
& - 240 \alpha_2^9 x_4^2 x_3 + 1710 \alpha_2^9 x_1 x_2^2 \alpha_3^2 + 240 \alpha_2^7 x_1 x_2^2 \alpha_3^4 - 1050 \alpha_2^{11} x_1 x_2^2 \\
& + 322 x_1^2 x_4 \alpha_2^6 \alpha_3^4 - 160 x_1 x_2 x_3 \alpha_2^{10} + 120 x_3^2 x_2 \alpha_2^4 \alpha_3^6 + 3645 x_3^2 x_2 \alpha_2^8 \alpha_3^2 \\
& + 1410 x_3^2 x_2 \alpha_2^6 \alpha_3^4 - 5130 \alpha_2^9 x_4 x_3 x_2 \alpha_3 + 316 \alpha_2^8 x_4^3 \alpha_3 - 40 \alpha_2^4 x_4^3 \alpha_3^5 \\
& + 1050 x_3^2 x_2 \alpha_2^{10} - 500 \alpha_2^{11} x_1^2 x_3 - 500 \alpha_2^{11} x_2^2 x_3 - 88 \alpha_2^5 x_2^2 x_3 \alpha_3^5 \\
& - 822 \alpha_2^7 x_2^2 x_3 \alpha_3^3 + 100 \alpha_2^9 x_2^2 x_3 \alpha_3^2 - 360 \alpha_2^6 x_1 x_4 x_3 \alpha_3^4 - 3690 \alpha_2^8 x_1 x_4 x_3 \alpha_3^2 \\
& + 225 x_1^2 x_2 \alpha_2^{10} \alpha_3 - 2580 \alpha_2^7 x_4 x_3 x_2 \alpha_3^3 + 450 \alpha_2^3 x_3^3 \alpha_3^6 + 644 x_1 x_2 x_3 \alpha_2^8 \alpha_3^2
\end{aligned}$$

$$\begin{aligned}
& + 80 x_1 x_2 x_3 \alpha_3^6 \alpha_2^4 + 900 x_1 x_2 x_3 \alpha_2^{10} \alpha_3 + 950 \alpha_2^9 x_3^3 \alpha_3 + 1466 \alpha_2^5 x_3^3 \alpha_3^4 \\
& + 644 x_1 x_2 x_3 \alpha_3^4 \alpha_2^6 + 40 \alpha_2 x_3^3 \alpha_3^8 + 1510 \alpha_2^7 x_3^3 \alpha_3^2 + 350 \alpha_2^7 x_3^3 \alpha_3^3 \\
& - 234 \alpha_2^6 x_4^3 \alpha_3^3 - 1268 \alpha_2^9 x_2^2 x_3 \alpha_3 - 80 \alpha_2^9 x_3^3 - 1188 \alpha_2^9 x_1^2 x_3 \alpha_3 \\
& - 350 \alpha_2^9 x_1^2 x_3 \alpha_3^2 - 240 \alpha_2^5 x_4 x_3 x_2 \alpha_3^5 - 3150 \alpha_2^{11} x_1^3 + 6200 \alpha_1^3 \alpha_2^6 x_2^2 x_4 \alpha_3^2 \\
& + 708 \alpha_1^3 x_1^2 x_4 \alpha_2^6 \alpha_3 - 25850 \alpha_1^3 \alpha_2^7 x_1 x_4 x_2 \alpha_3 + 300 \alpha_1^3 \alpha_2^3 x_4^2 x_3 \alpha_3^6 \\
& + 996 \alpha_1^3 \alpha_2^3 x_4^2 x_3 \alpha_3^3 + 1110 \alpha_1^3 x_1^2 x_2 \alpha_2 \alpha_3^6 - 24 \alpha_1^3 x_1^2 x_4 \alpha_3^5 \alpha_2^2 \\
& + 1758 \alpha_1^3 x_1^2 x_4 \alpha_3^3 \alpha_2^4 + 600 \alpha_1^3 x_1^2 x_4 \alpha_3^6 \alpha_2^2 + 8745 \alpha_1^3 x_1^2 x_2 \alpha_2^4 \alpha_3^4 \\
& - 3900 \alpha_1^7 \alpha_3^3 \alpha_2 x_1 x_4 x_2 + 56 \alpha_1 \alpha_2^8 x_4^3 + 1950 \alpha_1^7 \alpha_2 x_1^2 x_3 \alpha_3^3 - 600 \alpha_1^7 \alpha_3^2 \alpha_2 x_3^3 \\
& - 100 \alpha_1^7 \alpha_3 \alpha_2^2 x_4^3 + 600 \alpha_1^7 \alpha_2^4 x_1^2 x_4 + 4200 \alpha_1^6 x_4 x_3^2 \alpha_3^4 - 3300 \alpha_1^6 x_1^2 x_4 \alpha_3^5 \\
& + 120 \alpha_1^6 \alpha_3^3 \alpha_2^2 x_2^3 + 100 \alpha_1^6 \alpha_2^4 x_4^3 - 1200 \alpha_1^7 \alpha_3^2 x_1 x_2 x_3 \alpha_2^2 \\
& + 240 \alpha_1^6 \alpha_2^2 x_2^2 x_3^2 \alpha_3^2 - 18150 \alpha_1^6 x_1^2 x_4 \alpha_2^2 \alpha_3^3 + 625 \alpha_1^6 \alpha_3^2 \alpha_2^2 x_4^3 \\
& - 1200 \alpha_1^8 x_1^2 x_4 \alpha_2^2 \alpha_3 + 4200 \alpha_1^7 x_1^2 x_4 \alpha_3^4 - 2550 \alpha_1^7 \alpha_3^3 x_4 x_3^2 \\
& - 6300 x_4 x_3 x_1 \alpha_2^{10} + 7350 \alpha_1^4 \alpha_2^3 x_1 x_4 x_2 \alpha_3^4 + 664 \alpha_1^4 \alpha_2^4 x_1 x_4 x_2 \alpha_3^3 \\
& + 32050 \alpha_1^4 \alpha_2^5 x_1 x_4 x_2 \alpha_3^2 - 4100 \alpha_1^4 \alpha_2^4 x_2^2 x_4 \alpha_3^3 + 180 \alpha_1^4 \alpha_2^4 x_2^2 x_4^2 \alpha_3^4 \\
& - 1032 \alpha_1^4 x_1^2 x_4 \alpha_2^4 \alpha_3^2 - 23050 \alpha_1^4 x_1^2 x_4 \alpha_2^6 \alpha_3 - 1200 \alpha_1^5 x_1 x_2 x_3 \alpha_2^6 \\
& + 300 \alpha_1^4 \alpha_2 x_1 x_4 x_2 \alpha_3^6 + 12375 \alpha_1^4 x_4 x_3^2 \alpha_2^4 \alpha_3^2 + 324 \alpha_1^4 x_4 x_3^2 \alpha_2^2 \alpha_3^3 \\
& + 900 \alpha_1^5 \alpha_2^5 x_4^2 x_3 + 290 \alpha_1^4 \alpha_2^3 x_3^4 \alpha_3 + 1200 \alpha_1^4 x_4 x_3^2 \alpha_3^6 + 180 \alpha_1^4 \alpha_2^2 x_2^3 \alpha_3^5 \\
& - 150 \alpha_1^4 x_1^2 x_4 \alpha_3^7 - 3060 \alpha_1^4 \alpha_2^3 x_1^3 \alpha_3^4 - 80 \alpha_1^5 x_1 x_2 x_3 \alpha_2^2 \alpha_3^3 \\
& - 72 \alpha_1^5 \alpha_2^2 x_4 x_3^2 \alpha_3^2 - 480 \alpha_1^5 x_2 x_3^2 \alpha_2^4 \alpha_3 - 960 \alpha_1^5 \alpha_2^5 x_1 x_2 \alpha_3^2 \\
& - 144 \alpha_1^5 \alpha_2^3 x_1 x_4 x_2 \alpha_3^2 - 600 \alpha_1^5 \alpha_2^5 x_3^3 - 7350 \alpha_1^5 \alpha_3 \alpha_2^4 x_4 x_3^2 \\
& - 360 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_1 x_3^2 + 13575 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_4^2 x_3 - 1650 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_3^2 x_2 \\
& - 180 \alpha_1^5 \alpha_3 \alpha_2^4 x_2 x_4^2 + 1275 \alpha_1^5 \alpha_3^3 \alpha_2^3 x_2 x_3 - 11300 \alpha_1^5 \alpha_3^2 x_1 x_2 x_3 \alpha_2^4 \\
& - 270 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_2 x_4^2 - 3420 \alpha_1^5 \alpha_3^3 \alpha_2^3 x_1 x_2^2 + 96 \alpha_1^5 x_1^2 x_4 \alpha_2^4 \alpha_3 \\
& + 144 \alpha_1^5 \alpha_2^3 x_1^2 x_3 \alpha_3^2 + 4590 \alpha_1^5 \alpha_3^2 x_1^2 x_2 \alpha_2^4 - 360 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_1 x_4^2 \\
& + 5275 \alpha_1^5 \alpha_3^2 \alpha_2^4 x_2^2 x_4 + 720 \alpha_1^5 \alpha_3^5 \alpha_2 x_1^3 - 270 \alpha_1^5 \alpha_3^4 \alpha_2^2 x_2^3 \\
& + 2115 \alpha_1^5 \alpha_3^3 \alpha_2^3 x_1^3 - 6750 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_3^3 + 4050 \alpha_1^5 \alpha_2^6 x_1^2 x_4 \\
& + 500 \alpha_1^5 \alpha_2^6 x_2^2 x_4 + 240 \alpha_1^5 x_1^2 x_2 \alpha_2^6 - 40 \alpha_1^5 \alpha_2^3 x_3^3 \alpha_3 - 1800 \alpha_1^5 x_1 x_2 x_3 \alpha_2^2 \alpha_3^4 \\
& + 9525 \alpha_1^5 \alpha_2^3 x_1^2 x_3 \alpha_3^3 + 290 \alpha_1^5 \alpha_2 x_1^2 x_3 \alpha_3^4 - 18100 \alpha_1^5 \alpha_3^5 \alpha_2 x_1 x_4 x_2
\end{aligned}$$

$$\begin{aligned}
&+ 8850 \alpha_1^5 \alpha_3^5 \alpha_2^5 x_1^2 x_3 + 1000 \alpha_1^5 \alpha_3^5 \alpha_2^5 x_3 x_2^2 + 240 \alpha_1^5 \alpha_3^5 \alpha_2^5 x_4 x_3 x_2 \\
&+ 4500 \alpha_1^5 \alpha_2^5 x_4^2 x_3 \alpha_3^4 + 3450 \alpha_1^5 x_1^2 x_2 \alpha_2^2 \alpha_3^4 + 14250 \alpha_1^5 x_1^2 x_4 \alpha_3^4 \alpha_2^2 \\
&+ 1050 \alpha_1^5 \alpha_2^5 x_1^2 x_3 \alpha_3^5 - 2100 \alpha_1^5 \alpha_2^5 x_1 x_4 x_2 \alpha_3^5 - 18750 \alpha_1^5 \alpha_2^5 x_1 x_4 x_2 \alpha_3^3 \\
&+ 925 \alpha_1^4 \alpha_2^6 x_4^3 - 13500 \alpha_1^5 x_4 x_3^2 \alpha_2^2 \alpha_3^3 + 1200 \alpha_1^5 \alpha_2^5 x_2^2 x_4 \alpha_3^4 \\
&+ 404 \alpha_1^5 x_1^2 x_4 \alpha_2^2 \alpha_3^3 + 30350 \alpha_1^5 x_1^2 x_4 \alpha_2^4 \alpha_3^2 - 2250 \alpha_1^5 \alpha_2^5 x_3^3 \alpha_3^4 \\
&- 3300 \alpha_1^5 x_4 x_3^2 \alpha_3^5 - 1050 \alpha_1^5 \alpha_2^5 x_4 \alpha_3^3 - 60 \alpha_1^5 \alpha_3^5 \alpha_2^4 x_2^3 - 1550 \alpha_1^5 \alpha_3^4 \alpha_2^4 x_4^3 \\
&+ 1200 \alpha_1^5 x_1^2 x_4 \alpha_3^6 - 40 \alpha_1^6 \alpha_2^6 x_1^2 x_3 \alpha_3^3 - 72 \alpha_1^6 \alpha_2^6 x_1^2 x_4 \alpha_3^2 \\
&- 480 \alpha_1^6 x_1^2 x_2 \alpha_2^4 \alpha_3^4 + 14900 \alpha_1^6 \alpha_2^6 x_1 x_4 x_2 \alpha_3^2 - 10650 \alpha_1^6 x_1^2 x_4 \alpha_2^4 \alpha_3^4 \\
&+ 2700 \alpha_1^6 x_1 x_2 x_3 \alpha_2^2 \alpha_3^3 - 500 \alpha_1^6 \alpha_2^6 x_3 x_2^2 \alpha_3^2 - 2100 \alpha_1^6 \alpha_2^6 x_4^3 x_3 \alpha_3^2 \\
&+ 480 \alpha_1^6 \alpha_3^2 \alpha_2^3 x_1^2 x_2^2 + 120 \alpha_1^6 \alpha_3^2 \alpha_2^2 x_2^2 x_4^2 - 1650 \alpha_1^6 \alpha_3^3 x_1^2 x_2^2 \\
&- 3900 \alpha_1^6 \alpha_3^3 \alpha_2^2 x_4^2 x_3 - 1325 \alpha_1^6 \alpha_3^3 \alpha_2^2 x_2^2 x_4 + 1200 \alpha_1^6 \alpha_2^5 x_1 x_4 x_2 \\
&+ 9150 \alpha_1^7 \alpha_2^2 x_1^2 x_4 \alpha_3^2 + 500 \alpha_1^7 \alpha_3^2 \alpha_2^2 x_2^2 x_4 + 240 \alpha_1^7 \alpha_3^2 x_1^2 x_2 \alpha_2^2 \\
&+ 1200 \alpha_1^7 \alpha_3^2 \alpha_2^2 x_4^2 x_3 + 1200 \alpha_1^7 \alpha_2^3 x_1^2 x_3 \alpha_3^2 - 1200 \alpha_1^7 \alpha_3^2 x_4 x_3 \alpha_2^2 \\
&- 2400 \alpha_1^7 \alpha_3^2 \alpha_2^3 x_1 x_4 x_2 + 4500 \alpha_1^6 \alpha_2^6 x_1 x_4 x_2 \alpha_3^4 - 600 \alpha_1^8 \alpha_3^2 \alpha_2^2 x_1^2 x_3 \\
&+ 1200 \alpha_1^8 \alpha_3^2 \alpha_2^2 x_1 x_4 x_2 + 600 x_1^2 x_4 \alpha_3^2 \alpha_1^9 - 2550 \alpha_1^8 x_1^2 x_4 \alpha_3^3 \\
&+ 600 \alpha_1^8 \alpha_3^2 x_4 x_3^2 + 5550 \alpha_1^3 \alpha_2^3 x_4^2 x_3 \alpha_3^4 + 22050 \alpha_1^3 \alpha_2^5 x_4^2 x_3 \alpha_3^2 \\
&+ 5415 \alpha_1^3 x_1^2 x_2 \alpha_2^6 \alpha_3^2 + 2746 \alpha_1^3 \alpha_2^3 x_1^2 x_3 \alpha_3^4 + 50 \alpha_1^3 \alpha_2^2 x_2^2 x_4 \alpha_3^6 \\
&+ 30 \alpha_1^3 x_4 x_3^2 \alpha_3^4 \alpha_2^2 - 11475 \alpha_1^3 x_4 x_3^2 \alpha_3^4 \alpha_2^3 - 3300 \alpha_1^3 x_4 x_3^2 \alpha_3^5 \alpha_2^2 \\
&- 7650 \alpha_1^3 \alpha_2^5 x_1 x_4 x_2 \alpha_3^3 - 1100 \alpha_1^3 \alpha_2^3 x_1 x_4 x_2 \alpha_3^5 - 276 \alpha_1^3 \alpha_2^3 x_1 x_4 x_2 \alpha_3^4 \\
&- 1584 \alpha_1^3 \alpha_2^5 x_1 x_4 x_2 \alpha_3^2 - 528 \alpha_1^3 x_4 x_3^2 \alpha_2^4 \alpha_3^2 - 1950 \alpha_1^3 x_4 x_3^2 \alpha_2^6 \alpha_3 \\
&+ 2225 \alpha_1^3 \alpha_2^4 x_2^2 x_4 \alpha_3^4 - 2950 \alpha_1^3 \alpha_2^7 x_3^3 + 7100 \alpha_1^4 \alpha_2^7 x_1 x_4 x_2 \\
&+ 398 \alpha_1^3 \alpha_2^4 x_2^2 x_4 \alpha_3^3 - 30 \alpha_1^3 \alpha_2^2 x_2^2 x_4 \alpha_3^5 - 1215 \alpha_1^3 \alpha_2^4 x_2^2 x_4 \alpha_3^3 \\
&- 90 \alpha_1^3 \alpha_2^3 x_1^2 x_4 \alpha_3^4 + 495 \alpha_1^4 \alpha_3^2 \alpha_2^4 x_2^2 x_4 + 450 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_1^2 x_4 \\
&- 765 \alpha_1^4 \alpha_3^3 \alpha_2^4 x_2^3 - 2520 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_4 x_3 x_2 - 5125 \alpha_1^4 \alpha_3^2 \alpha_2^5 x_3 x_2^2 \\
&+ 7750 \alpha_1^4 \alpha_3^5 \alpha_2^3 x_3 - 14550 \alpha_1^4 \alpha_3^5 \alpha_2^2 x_4 x_3 + 720 \alpha_1^4 \alpha_3^5 \alpha_2^2 x_1 x_3 \\
&- 600 \alpha_1^4 \alpha_3^5 \alpha_2^5 x_4 x_3 x_2 + 5190 \alpha_1^4 \alpha_3^2 \alpha_2^4 x_2^2 x_3 - 4230 \alpha_1^4 \alpha_3^4 x_1^2 x_2 \alpha_2^6 \\
&- 6575 \alpha_1^4 \alpha_3^6 \alpha_2^2 x_4 + 540 \alpha_1^4 \alpha_3^5 \alpha_2^5 x_1^2 x_4 - 7065 \alpha_1^4 \alpha_3^2 \alpha_2^5 x_1^3 \\
&+ 14500 \alpha_1^4 \alpha_3^4 x_1 x_2 x_3 \alpha_2^6 + 2115 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_1 x_3^2 + 10320 \alpha_1^4 \alpha_3^4 \alpha_2^5 x_1 x_2^2
\end{aligned}$$

$$\begin{aligned}
& + 60 \alpha_1^4 \alpha_2^6 x_2 x_4^2 + 1485 \alpha_1^3 \alpha_2^3 x_1^3 \alpha_3^5 - 150 \alpha_1^3 x_4 x_3^2 \alpha_3^7 - 30 \alpha_1^3 \alpha_2^2 x_2^3 \alpha_3^6 \\
& - 825 \alpha_1^3 \alpha_2^4 x_4^3 \alpha_3^3 + 11790 \alpha_1^3 \alpha_2^5 x_1^3 \alpha_3^3 + 795 \alpha_1^3 \alpha_2^4 x_2^3 \alpha_3^4 \\
& - 10600 \alpha_1^3 \alpha_2^5 x_3^3 \alpha_3^2 - 24 \alpha_1^4 \alpha_2^6 x_1^2 x_4 + 240 \alpha_1^4 \alpha_2^6 x_2 x_3^2 - 500 \alpha_1^4 \alpha_2^7 x_3 x_2^2 \\
& - 144 \alpha_1^4 \alpha_3^2 \alpha_2^4 x_2^2 x_4 + 96 \alpha_1^4 \alpha_3^4 \alpha_2^4 x_4 x_3^2 - 216 \alpha_1^4 \alpha_3^2 \alpha_2^3 x_4^2 x_3 \\
& - 112 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_2^2 x_3 - 120 \alpha_1^4 \alpha_3^5 \alpha_2^2 x_1^2 x_3 + 288 \alpha_1^4 \alpha_3^2 x_1 x_2 x_3 \alpha_2^4 \\
& + 480 \alpha_1^4 \alpha_2^7 x_1 x_2^2 + 2550 \alpha_1^4 x_4 x_3^2 \alpha_2^6 - 3450 \alpha_1^4 \alpha_2^7 x_1 x_3 - 240 \alpha_1^4 \alpha_3 \alpha_2^6 x_2^3 \\
& + 300 \alpha_1^4 x_1 x_2 x_3 \alpha_3^5 \alpha_2^2 - 375 \alpha_1^4 \alpha_2^4 x_2 x_3 \alpha_3^4 - 1234 \alpha_1^4 \alpha_2^3 x_1 x_3 \alpha_3^3 \\
& - 16175 \alpha_1^4 \alpha_2^5 x_1^2 x_3 \alpha_3^2 + 192 \alpha_1^4 \alpha_3^5 \alpha_2^5 x_1 x_4 x_2 + 500 \alpha_1^4 x_1 x_2 x_3 \alpha_2^2 \alpha_3^4 \\
& + 5200 \alpha_1^4 x_1 x_2 x_3 \alpha_2^4 \alpha_3^3 + 3450 \alpha_1^4 x_3^2 x_2 \alpha_3^4 \alpha_2^2 + 625 \alpha_1^4 \alpha_2^2 x_4^3 \alpha_3^4 \\
& + 8175 \alpha_1^4 \alpha_2^3 x_3^3 \alpha_3^3 + 4225 \alpha_1^4 \alpha_2^4 x_4^3 \alpha_3^2 + 1050 \alpha_1^4 \alpha_2^3 x_3^5 \\
& - 72 \alpha_1^4 \alpha_3^4 \alpha_2^4 x_4^3 + 144 \alpha_1^4 \alpha_3^2 \alpha_2^3 x_3^3 - 150 \alpha_1^4 \alpha_2^2 x_1^2 x_3 \alpha_3^6 \\
& - 9045 \alpha_1^4 x_1 x_2 \alpha_2^4 \alpha_3^3 + 4830 \alpha_1^4 \alpha_2^3 x_1 x_2 \alpha_3^4 - 670 \alpha_1^4 \alpha_2 x_1^2 x_3 \alpha_3^5 \\
& - 470 \alpha_1^4 x_1 x_4 \alpha_3^4 \alpha_2^2 - 4650 \alpha_1^4 x_1 x_4 \alpha_3^5 \alpha_2^2 - 23950 \alpha_1^4 x_1 x_4 \alpha_3^3 \alpha_2^4 \\
& - 2100 \alpha_1^4 \alpha_2 x_4^2 x_3 \alpha_3^5 - 16125 \alpha_1^4 \alpha_2^3 x_4^2 x_3 \alpha_3^3 - 3030 \alpha_1^4 x_1 x_2 \alpha_2^2 \alpha_3^5 \\
& - 4275 \alpha_1^4 \alpha_2^3 x_1^2 x_3 \alpha_3^4 - 425 \alpha_1^4 \alpha_2^2 x_2^2 x_4 \alpha_3^5 + 10200 \alpha_1^4 x_4 x_3^2 \alpha_3^4 \alpha_2^2 \\
& - 360 \alpha_1^4 \alpha_2^7 x_1^3 - 2316 \alpha_1^2 \alpha_2^3 x_1^2 x_3 \alpha_3^5 - 56 \alpha_1^2 \alpha_2^8 x_2^2 x_4 + 1100 \alpha_1^2 x_1^2 x_4 \alpha_2^{10} \\
& + 5175 \alpha_1^7 \alpha_2^3 x_1^3 \alpha_3^3 + 1600 \alpha_1^{10} \alpha_2^2 x_2^2 x_4 + 360 \alpha_1^5 \alpha_2^3 x_1^3 \alpha_3^5 + 120 \alpha_1 x_4 x_3^2 \alpha_2^8 \\
& - 1068 \alpha_1^6 \alpha_2^3 x_4^3 \alpha_3^2 + 2400 \alpha_1^9 \alpha_2^2 x_4^2 x_3 + 150 \alpha_1^6 \alpha_2^2 x_2^2 x_4 \alpha_3^4 \\
& - 10140 \alpha_1^2 \alpha_2^7 x_2 x_4 x_3 \alpha_3 + 2505 \alpha_1^2 x_1 x_2 \alpha_2^8 \alpha_3 - 425 \alpha_1^2 \alpha_2^2 x_3 x_2^2 \alpha_3^2 \\
& - 2370 \alpha_1^2 \alpha_2^6 x_1^2 x_4 \alpha_3^2 - 105 \alpha_1^2 \alpha_2^8 x_2 x_4^2 - 2610 \alpha_1^2 \alpha_3^4 \alpha_2^4 x_1 x_4 x_3 \\
& + 14790 \alpha_1^2 \alpha_2^6 x_2 x_3^2 \alpha_3^2 + 9525 \alpha_1^2 \alpha_2^4 x_2 x_3^2 \alpha_3^4 - 2575 \alpha_1^2 \alpha_2^9 x_3 x_2^2 \\
& - 11880 \alpha_1^2 \alpha_3^2 \alpha_2^6 x_1 x_4 x_3 + 5200 \alpha_1^2 x_1 x_2 x_3 \alpha_2^6 \alpha_3^3 + 6800 \alpha_1^2 x_1 x_2 x_3 \alpha_2^8 \alpha_3 \\
& - 12810 \alpha_1^2 \alpha_2^5 x_2 x_4 x_3 \alpha_3^3 - 8175 \alpha_1^2 x_1^2 x_2 \alpha_2^6 \alpha_3^3 + 32 \alpha_1^2 x_1 x_2 x_3 \alpha_2^8 \\
& + 7605 \alpha_1^2 \alpha_3 \alpha_2^7 x_1 x_3^2 - 360 \alpha_1^2 \alpha_2^8 x_1 x_4 x_3 + 500 \alpha_1^2 x_1 x_2 x_3 \alpha_3^6 \alpha_2^2 \\
& - 290 \alpha_1^2 \alpha_2^2 x_1^2 x_3 \alpha_3^7 - 344 \alpha_1^2 \alpha_3 \alpha_2^7 x_3 x_2^2 + 2372 \alpha_1^2 x_1 x_2 x_3 \alpha_3^4 \alpha_2^4 \\
& - 3645 \alpha_1^2 \alpha_3^3 \alpha_2^6 x_2^3 - 168 \alpha_1^2 \alpha_2^7 x_4^2 x_3 - 5175 \alpha_1^2 \alpha_3^8 \alpha_2^3 x_2^3 + 3480 \alpha_1^2 \alpha_2^9 x_1 x_2^2 \\
& + 1830 \alpha_1^2 \alpha_2^8 x_2 x_3^2 - 80 \alpha_1^2 \alpha_2^8 x_1^2 x_4 - 17550 \alpha_1^2 \alpha_2^7 x_1^3 \alpha_3^2 \\
& + 2496 \alpha_1^2 \alpha_2^3 x_3^3 \alpha_3^4 - 282 \alpha_1^2 \alpha_2^6 x_4^3 \alpha_3 + 4850 \alpha_1^2 \alpha_2^5 x_3^3 \alpha_3^3
\end{aligned}$$

$$\begin{aligned}
& +5975 \alpha_1^2 \alpha_2^7 x_3^3 \alpha_3 - 3875 \alpha_1^2 \alpha_2^9 x_1^2 x_3 + 670 \alpha_1^2 \alpha_2 x_3^3 \alpha_3^6 \\
& + 1110 \alpha_1^2 x_3^2 x_2 \alpha_3^6 \alpha_2^2 - 12825 \alpha_1^2 \alpha_2^7 x_4^2 x_3 \alpha_3 - 2168 \alpha_1^2 \alpha_2^5 x_2^2 x_3 \alpha_3^3 \\
& + 13500 \alpha_1^2 \alpha_2^7 x_1 x_2^2 \alpha_3^2 + 2460 \alpha_1^2 x_1 x_2 x_3 \alpha_2^6 \alpha_3^2 + 750 \alpha_1^2 \alpha_2^3 x_3^3 \alpha_3^5 \\
& - 4600 \alpha_1^2 x_1^2 x_4 \alpha_2^6 \alpha_3^3 - 1980 \alpha_1^2 \alpha_2^3 x_4 x_3 x_2 \alpha_3^5 + 900 \alpha_1^2 \alpha_2^5 x_2^2 x_3 \alpha_3^4 \\
& - 558 \alpha_1^2 \alpha_2^3 x_2^2 x_3 \alpha_3^5 + 1518 \alpha_1^2 \alpha_2^5 x_3^3 \alpha_3^2 + 10125 \alpha_1^2 \alpha_2^5 x_1 x_3^2 \alpha_3^3 \\
& + 240 \alpha_1^2 \alpha_2^3 x_1 x_2^2 \alpha_3^6 + 5970 \alpha_1^2 \alpha_2^5 x_1 x_2^2 \alpha_3^4 + 2425 \alpha_1^2 \alpha_2^8 x_4^3 \\
& - 4350 \alpha_1^2 \alpha_2^5 x_4^2 x_3 \alpha_3^3 - 3150 \alpha_1^2 x_1^2 x_2 \alpha_2^4 \alpha_3^5 + 202 \alpha_1^2 x_1 x_4 \alpha_3^6 \alpha_2^2 \\
& - 120 \alpha_1^2 x_1^2 x_2 \alpha_2^2 \alpha_3^7 - 900 \alpha_1^2 x_1^2 x_4 \alpha_2^4 \alpha_3^5 - 7550 \alpha_1^2 x_1^2 x_4 \alpha_2^8 \alpha_3 \\
& + 1485 \alpha_1^2 \alpha_2^3 x_1 x_3^2 \alpha_3^5 + 300 \alpha_1^2 \alpha_2^4 x_4^3 \alpha_3^4 - 414 \alpha_1^2 \alpha_2^3 x_4^2 x_3^4 \\
& - 900 \alpha_1^2 \alpha_2^3 x_4^2 x_3 \alpha_3^5 - 2574 \alpha_1^2 \alpha_2^5 x_4^2 x_3 \alpha_3^2 - 1125 \alpha_1^2 x_4 x_3^2 \alpha_2^8 \\
& - 825 \alpha_1^2 \alpha_2^6 x_4^3 \alpha_3^2 + 512 \alpha_1^2 \alpha_2^4 x_4^3 \alpha_3^3 - 150 \alpha_1^2 \alpha_2^4 x_2^3 \alpha_3^5 + 16 \alpha_1^2 \alpha_2^7 x_3^3 \\
& - 864 \alpha_1^2 x_4^2 x_3^2 \alpha_3^5 \alpha_2^2 + 3150 \alpha_1^2 x_4 x_3^2 \alpha_3^2 \alpha_2^6 + 450 \alpha_1^2 x_4 x_3^2 \alpha_3^6 \alpha_2^2 \\
& - 5725 \alpha_1^2 \alpha_2^7 x_1^2 x_3 \alpha_3^2 + 2250 \alpha_1^2 x_4 x_3^2 \alpha_3^4 \alpha_2^4 - 1194 \alpha_1^2 x_4 x_3^2 \alpha_3^3 \alpha_2^4 \\
& - 1700 \alpha_1^2 \alpha_2^5 x_1^2 x_3 \alpha_3^4 + 8050 \alpha_1^2 \alpha_2^9 x_1 x_4 x_2 - 4900 \alpha_1^2 \alpha_2^8 x_2^2 x_4 \alpha_3 \\
& - 324 \alpha_1^2 \alpha_2^3 x_1 x_4 x_2 \alpha_3^5 + 650 \alpha_1^2 \alpha_2^7 x_1 x_4 x_2 \alpha_3^2 - 2835 \alpha_1^2 \alpha_2^9 x_1^3 \\
& - 1140 \alpha_1^2 \alpha_2^6 x_2^2 x_4 \alpha_3^2 + 840 \alpha_1^2 \alpha_2^4 x_2 x_4^2 \alpha_3^4 + 2760 \alpha_1^2 \alpha_2^6 x_2 x_4^2 \alpha_3^2 \\
& + 1035 \alpha_1^2 \alpha_2^5 x_1 x_4^2 \alpha_3^3 + 900 \alpha_1^3 \alpha_2^3 x_1^2 x_3 \alpha_3^5 + 6925 \alpha_1^3 \alpha_2^5 x_1^2 x_3 \alpha_3^3 \\
& + 12775 \alpha_1^3 \alpha_2^7 x_1^2 x_3 \alpha_3 + 6800 \alpha_1^3 \alpha_2^4 x_1^2 x_4 \alpha_3^4 + 32 \alpha_1^3 \alpha_2^6 x_4^3 \\
& + 19450 \alpha_1^3 \alpha_2^6 x_1 x_4 \alpha_3^2 - 48 \alpha_1^3 \alpha_2^7 x_1 x_4 x_2 - 150 \alpha_1^2 \alpha_2^4 x_2^2 x_4 \alpha_3^5 \\
& + 1136 \alpha_1^2 \alpha_2^5 x_1 x_4 x_2 \alpha_3^3 + 1500 \alpha_1^2 \alpha_2^5 x_1 x_4 x_2 \alpha_3^4 + 968 \alpha_1^2 \alpha_2^7 x_1 x_4 x_2 \alpha_3 \\
& - 3825 \alpha_1^2 \alpha_2^6 x_2^2 x_4 \alpha_3^3 - 5900 \alpha_1^3 x_1 x_2 x_3 \alpha_2^8 - 360 \alpha_1^3 \alpha_2^7 x_1 x_3^2 \\
& + 4875 \alpha_1^3 \alpha_2^7 x_4^2 x_3 + 3330 \alpha_1^3 \alpha_3^3 \alpha_2^4 x_1 x_4 x_3 + 1290 \alpha_1^3 x_1^2 x_2 \alpha_2^8 \\
& + 6650 \alpha_1^3 \alpha_2^8 x_1 x_4 - 180 \alpha_1^3 \alpha_2^7 x_1 x_4^2 + 2625 \alpha_1^3 \alpha_2^8 x_2^2 x_4 - 4815 \alpha_1^2 \alpha_2^5 x_1^3 \alpha_3^4 \\
& - 180 \alpha_1^2 \alpha_2^3 x_1^3 \alpha_3^6 - 945 \alpha_1^3 \alpha_3^2 \alpha_2^5 x_1 x_4^2 - 7065 \alpha_1^3 \alpha_3^2 \alpha_2^5 x_1 x_3^2 \\
& - 10380 \alpha_1^3 \alpha_3 \alpha_2^7 x_1 x_2 + 8790 \alpha_1^3 \alpha_3 \alpha_2^5 x_4 x_3 x_2 + 360 \alpha_1^3 \alpha_2^7 x_4 x_3 x_2 \\
& + 360 \alpha_1^3 \alpha_3 \alpha_2^6 x_1 x_4 x_3 + 7785 \alpha_1^3 \alpha_3 \alpha_2^7 x_1^3 - 240 \alpha_1^3 \alpha_3 x_1 x_2 x_3 \alpha_2^6 \\
& + 504 \alpha_1^3 \alpha_3 \alpha_2^5 x_4^2 x_3 + 200 \alpha_1^3 \alpha_3 \alpha_2^6 x_2^2 x_4 - 120 \alpha_1^3 \alpha_3 \alpha_2^5 x_3^3 \\
& - 840 \alpha_1^3 x_1 x_2 x_3 \alpha_3^5 \alpha_2^2 + 525 \alpha_1^3 \alpha_2^5 x_2 x_3 \alpha_3^3 + 670 \alpha_1^3 \alpha_2 x_1^2 x_3 \alpha_3^6
\end{aligned}$$

$$\begin{aligned}
& + 582 \alpha_1^3 \alpha_2^3 x_2^2 x_3 \alpha_3^4 - 24 \alpha_1^3 x_4 x_3^2 \alpha_2^6 - 2600 \alpha_1^3 x_1 x_2 x_3 \alpha_3^4 \alpha_2^4 \\
& + 1734 \alpha_1^3 \alpha_2^5 x_1^2 x_3 \alpha_3^2 + 384 \alpha_1^3 \alpha_3^2 \alpha_2^5 x_3 x_2^2 - 120 \alpha_1^3 \alpha_3 \alpha_2^6 x_2 x_4^2 \\
& - 5370 \alpha_1^3 \alpha_3 \alpha_2^6 x_2 x_3^2 + 6425 \alpha_1^3 \alpha_3 \alpha_2^7 x_3 x_2^2 - 1956 \alpha_1^3 x_1 x_2 x_3 \alpha_2^4 \alpha_3^3 \\
& - 3030 \alpha_1^3 x_3^2 x_2 \alpha_3^5 \alpha_2^2 + 4020 \alpha_1^3 \alpha_2^3 x_4 x_3 x_2 \alpha_3^4 - 400 \alpha_1^3 \alpha_2^3 x_2^2 x_3 \alpha_3^5 \\
& + 180 \alpha_1^3 \alpha_2^8 x_2^3 - 2130 \alpha_1^3 \alpha_2^3 x_1 x_2^2 \alpha_3^5 - 14520 \alpha_1^3 \alpha_2^5 x_1 x_2^2 \alpha_3^3 \\
& - 12015 \alpha_1^3 x_3^2 x_2 \alpha_3^3 \alpha_2^4 - 3060 \alpha_1^3 \alpha_2^3 x_1 x_3^2 \alpha_3^4 - 7600 \alpha_1^3 x_1 x_2 x_3 \alpha_2^6 \alpha_3^2 \\
& - 1194 \alpha_1^3 \alpha_2^3 x_3^3 \alpha_3^3 - 3375 \alpha_1^3 \alpha_2^3 x_3^3 \alpha_3^4 + 66 \alpha_1^3 \alpha_2^4 x_4^3 \alpha_3^2 \\
& - 150 \alpha_1^3 \alpha_2^3 x_3^3 \alpha_3^6 - 5600 \alpha_1^3 \alpha_2^6 x_4^3 \alpha_3^3 - 670 \alpha_1^3 \alpha_2^3 x_3^3 \alpha_3^5 - 100 \alpha_1^3 \alpha_2^2 x_4^3 \alpha_3^5 \\
& + 16 \alpha_1^3 \alpha_2^7 x_1^2 x_3 + 4275 \alpha_1^3 \alpha_3^2 \alpha_2^6 x_2^3 + 2854 \alpha_1^7 \alpha_2^2 x_3 x_2^2 \alpha_3^2 - 2655 \alpha_1 \alpha_2^9 x_1 x_3^2 \\
& + 3870 \alpha_1 \alpha_2^9 x_4 x_3 x_2 + 1935 \alpha_1 \alpha_2^{10} x_2^3 + 2525 \alpha_1 \alpha_2^9 x_1^2 x_3 \alpha_3 \\
& - 2176 \alpha_1 x_1 x_2 x_3 \alpha_2^6 \alpha_3^3 - 844 \alpha_1 x_1 x_2 x_3 \alpha_2^8 \alpha_3 + 72 \alpha_1 \alpha_2^9 x_3 x_2^2 \\
& - 1144 \alpha_1 x_1 x_2 x_3 \alpha_3^5 \alpha_2^4 - 80 \alpha_1 x_1 x_2 x_3 \alpha_3^7 \alpha_2^2 + 14850 \alpha_1 \alpha_3 \alpha_2^8 x_1 x_4 x_3 \\
& + 2298 \alpha_1 \alpha_2^7 x_4^2 x_3 \alpha_3 - 3800 \alpha_1 x_1 x_2 x_3 \alpha_2^8 \alpha_3^2 + 775 \alpha_1 \alpha_2^9 x_2^2 x_3 \alpha_3 \\
& + 1380 \alpha_1 \alpha_2^5 x_2^2 x_3 \alpha_3^4 + 700 \alpha_1 \alpha_2^3 x_1^2 x_3 \alpha_3^6 - 600 \alpha_1 \alpha_2^7 x_2^2 x_3 \alpha_3^3 \\
& + 240 \alpha_1 \alpha_2^3 x_4 x_3 x_2 \alpha_3^6 + 88 \alpha_1 \alpha_2^3 x_2^2 x_3 \alpha_3^6 + 6300 \alpha_1 \alpha_2^6 x_1 x_4 x_3 \alpha_3^3 \\
& + 360 \alpha_1 \alpha_2^4 x_1 x_4 x_3 \alpha_3^5 + 13920 \alpha_1 \alpha_2^7 x_4 x_3 x_2 \alpha_3^2 - 120 \alpha_1 x_3^2 x_2 \alpha_3^7 \alpha_2^2 \\
& - 10140 \alpha_1 x_3^2 x_2 \alpha_2^6 \alpha_3^3 + 4560 \alpha_1 \alpha_2^5 x_4 x_3 x_2 \alpha_3^4 + 40 \alpha_1 \alpha_2^2 x_1^2 x_3 \alpha_3^8 \\
& - 2600 \alpha_1 x_1 x_2 x_3 \alpha_2^{10} - 2520 \alpha_1 x_3^2 x_2 \alpha_2^4 \alpha_3^5 - 7275 \alpha_1 x_3^2 x_2 \alpha_2^8 \alpha_3 \\
& - 11610 \alpha_1 \alpha_2^7 x_1 x_3^2 \alpha_3^2 - 180 \alpha_1 \alpha_2^3 x_1 x_3^2 \alpha_3^6 - 5550 \alpha_1 \alpha_2^7 x_1 x_2^2 \alpha_3^3 \\
& - 480 \alpha_1 \alpha_2^5 x_1 x_2^2 \alpha_3^5 - 2760 \alpha_1 \alpha_2^9 x_1 x_2^2 \alpha_3 + 600 \alpha_1 x_1^2 x_4 \alpha_2^6 \alpha_3^4 \\
& - 500 \alpha_1 x_1^2 x_4 \alpha_2^6 \alpha_3^3 - 2325 \alpha_1 x_1^2 x_2 \alpha_2^{10} + 4185 \alpha_1 \alpha_2^8 x_2^3 \alpha_3^2 \\
& - 40 \alpha_1 x_1^2 x_4 \alpha_3^7 \alpha_2^2 + 390 \alpha_1 \alpha_2^6 x_2^3 \alpha_3^4 + 74 \alpha_1 \alpha_2^4 x_4^3 \alpha_3^4 + 1525 \alpha_1 \alpha_2^8 x_4^3 \alpha_3^3 \\
& - 1896 \alpha_1 \alpha_2^3 x_3^3 \alpha_3^5 - 950 \alpha_1 \alpha_2^5 x_3^3 \alpha_3^4 - 290 \alpha_1 \alpha_2^3 x_3^7 \alpha_3 - 3176 \alpha_1 \alpha_2^5 x_3^3 \alpha_3^3 \\
& - 3475 \alpha_1 \alpha_2^7 x_3^3 \alpha_3^2 - 300 \alpha_1 \alpha_2^6 x_4^3 \alpha_3^3 - 494 \alpha_1 \alpha_2^7 x_3^3 \alpha_3 - 8 \alpha_1 \alpha_2^9 x_1^2 x_3 \\
& + 495 \alpha_1 \alpha_2^9 x_1 x_4^2 + 2235 \alpha_1 x_1^2 x_2 \alpha_2^8 \alpha_3^2 + 750 \alpha_1 \alpha_2^7 x_4^2 x_3 \alpha_3^2 \\
& + 168 \alpha_1 \alpha_2^5 x_4^2 x_3 \alpha_3^3 + 300 \alpha_1 x_4 x_3^2 \alpha_2^6 \alpha_3^3 + 2925 \alpha_1 x_4 x_3^2 \alpha_2^8 \alpha_3 \\
& - 486 \alpha_1 \alpha_2^3 x_4^2 x_3 \alpha_3^5 + 240 \alpha_1 x_1^2 x_2 \alpha_2^4 \alpha_3^6 + 1300 \alpha_1 \alpha_2^7 x_1^2 x_3 \alpha_3^3 \\
& + 3598 \alpha_1 \alpha_2^7 x_1^2 x_3 \alpha_3^2 + 2988 \alpha_1 x_4 x_3^2 \alpha_3^4 \alpha_2^4 + 2664 \alpha_1 x_4 x_3^2 \alpha_3^2 \alpha_2^6
\end{aligned}$$



$$\begin{aligned}
& + 702 \alpha_1 x_4 x_3^2 \alpha_3^6 \alpha_2^2 + 822 \alpha_1 \alpha_2^8 x_2^2 x_4 \alpha_3 - 450 \alpha_1 x_4 x_3^2 \alpha_3^5 \alpha_2^4 \\
& + 2970 \alpha_1 x_1^2 x_2 \alpha_2^6 \alpha_3^4 + 900 \alpha_1 \alpha_2^5 x_4^2 x_3 \alpha_3^4 - 524 \alpha_1 x_1^2 x_4 \alpha_2^4 \alpha_3^5 \\
& + 1162 \alpha_1 x_1^2 x_4 \alpha_2^8 \alpha_3 + 1400 \alpha_1 x_1^2 x_4 \alpha_2^8 \alpha_3^2 - 3510 \alpha_1 \alpha_2^5 x_1 x_3^2 \alpha_3^4 \\
& - 1300 \alpha_1 \alpha_2^9 x_3^3 + 80 \alpha_1 \alpha_2^3 x_1 x_4 x_2 \alpha_3^6 + 2750 \alpha_1 \alpha_2^9 x_1 x_4 x_2 \alpha_3 \\
& - 1012 \alpha_1 \alpha_2^6 x_2^2 x_4 \alpha_3^3 - 2340 \alpha_1 \alpha_2^7 x_1 x_4^2 \alpha_3^2 - 1492 \alpha_1 \alpha_2^7 x_1 x_4 x_2 \alpha_3^2 \\
& + 11970 \alpha_1 \alpha_2^9 x_1^3 \alpha_3 - 88 \alpha_1 \alpha_2^4 x_2^2 x_4 \alpha_3^5 - 1890 \alpha_1 \alpha_2^6 x_2 x_4 \alpha_3^3 \\
& - 2775 \alpha_1 \alpha_2^8 x_2 x_4^2 \alpha_3 - 120 \alpha_1 \alpha_2^4 x_2 x_4^2 \alpha_3^5 - 4486 \alpha_1^2 \alpha_2^5 x_1^2 x_3 \alpha_3^3 \\
& - 782 \alpha_1^2 \alpha_2^7 x_1^2 x_3 \alpha_3 + 202 \alpha_1^2 \alpha_2^4 x_1^2 x_4 \alpha_3^4 - 36 \alpha_1^2 x_4 x_3^2 \alpha_2^6 \alpha_3 \\
& + 374 \alpha_1^2 \alpha_2^4 x_2^2 x_4 \alpha_3^4 - 2250 \alpha_1^6 \alpha_2 x_1^2 x_3 \alpha_3^4 + 2400 \alpha_1^6 x_1 x_2 x_3 \alpha_2^4 \alpha_3 \\
& - 7350 \alpha_1^6 \alpha_2^3 x_1^2 x_3 \alpha_3^2 + 7350 \alpha_1^6 \alpha_2^2 x_4 x_3^2 \alpha_3^2 - 360 \alpha_1^6 \alpha_2^3 x_1^3 \alpha_3^2 \\
& + 1200 \alpha_1^6 \alpha_2^3 x_3^3 \alpha_3 - 600 \alpha_1^6 \alpha_2^5 x_1^2 x_3 + 600 \alpha_1^6 \alpha_2^4 x_4 x_3^2 + 1950 \alpha_1^6 \alpha_2 x_3^3 \alpha_3^3 \\
& - 1000 \alpha_1^6 \alpha_2^4 x_2^2 x_4 \alpha_3) \beta^2 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3) (\alpha_1^4 - 4 \alpha_1^3 \alpha_3 + 8 \alpha_1^2 \alpha_2^2 + 6 \alpha_1^2 \alpha_3^2 - 4 \alpha_1 \alpha_3^3 - 16 \alpha_2^2 \alpha_1 \alpha_3 \\
& + 16 \alpha_2^4 + 8 \alpha_3^2 \alpha_2^2 + \alpha_3^4)), \frac{1}{24} \beta^2 (420 \alpha_2^4 x_4^2 x_3 \alpha_3^4 + 4005 \alpha_2^6 x_4^2 x_3 \alpha_3^2 \\
& + 5250 \alpha_2^8 x_4^2 x_3 - 180 \alpha_2^5 x_4^3 \alpha_3^3 - 362 \alpha_2^3 x_2 x_3^2 \alpha_3^5 + 250 \alpha_2^7 x_2 x_3^2 \alpha_3^2 \\
& - 556 \alpha_2^5 x_2 x_3^2 \alpha_3^3 + 150 \alpha_2^5 x_2 x_3^2 \alpha_3^4 + 396 \alpha_2^7 x_2 x_3^2 \alpha_3 - 60 \alpha_2^4 x_1 x_3 \alpha_3^5 \\
& - 5715 \alpha_2^7 x_3^2 x_4 \alpha_3 - 3135 \alpha_2^5 x_3^2 x_4 \alpha_3^3 - 300 \alpha_2^3 x_3^2 x_4 \alpha_3^5 - 500 \alpha_2^9 x_2 x_4^2 \\
& - 1395 \alpha_2^7 x_4^3 \alpha_3 - 1050 \alpha_2^8 x_3^3 - 80 \alpha_2 x_1 x_4 x_3 \alpha_3^7 - 1500 \alpha_2^{10} x_1 x_2^2 \\
& + 644 \alpha_2^4 x_4 x_3 x_2 \alpha_3^4 - 300 \alpha_2^6 x_4 x_3 x_2 \alpha_3^3 + 644 \alpha_2^6 x_4 x_3 x_2 \alpha_3^2 - 300 \alpha_2^8 x_4 x_3 x_2 \alpha_3 \\
& + 80 \alpha_2^2 x_4 x_3 x_2 \alpha_3^6 + 40 x_1 x_3^2 \alpha_3^8 + 450 \alpha_2^7 x_2^2 x_4 \alpha_3^2 - 350 x_1^3 \alpha_2^8 \alpha_3^2 \\
& + 60 \alpha_2^2 x_3^3 \alpha_3^6 + 900 \alpha_2^6 x_3^3 \alpha_3^2 + 615 \alpha_2^4 x_3^3 \alpha_3^4 + 316 \alpha_2^7 x_2 x_4^2 \alpha_3 \\
& - 234 \alpha_2^5 x_2 x_4^2 \alpha_3^3 + 100 \alpha_2^7 x_2 x_4^2 \alpha_3^2 - 40 \alpha_2^3 x_2 x_4^2 \alpha_3^5 - 555 \alpha_2^6 x_1^2 x_3 \alpha_3^3 \\
& - 585 \alpha_2^8 x_1^2 x_3 \alpha_3 + 450 \alpha_2^2 x_1 x_3^2 \alpha_3^6 - 820 \alpha_3^5 \alpha_2^3 x_1 x_4 x_3 - 1000 \alpha_2^9 x_1 x_4 x_3 \\
& - 650 \alpha_2^9 x_2^3 \alpha_3 + 638 \alpha_2^7 x_2^3 \alpha_3^2 - 410 x_1^3 \alpha_2^4 \alpha_3^5 + 1845 \alpha_2^7 x_1^2 x_4 \alpha_3^2 \\
& + 120 \alpha_2^3 x_1^2 x_2 \alpha_3^6 + 450 \alpha_3 \alpha_2^8 x_1 x_4^2 + 300 \alpha_3^2 \alpha_2^8 x_1 x_2^2 - 240 \alpha_3^3 \alpha_2^6 x_2^2 x_3 \\
& - 1290 \alpha_3^3 \alpha_2^6 x_1 x_2^2 - 40 x_1^3 \alpha_2^2 \alpha_3^7 + 950 \alpha_3^8 \alpha_2 x_1 x_3^2 + 350 \alpha_3^3 \alpha_2^6 x_1 x_3^2
\end{aligned}$$

$$\begin{aligned}
& +750 \alpha_3 \alpha_2^9 x_1^2 x_2 - 150 \alpha_3^3 \alpha_2^7 x_1^2 x_2 - 700 \alpha_3^2 \alpha_2^7 x_1 x_4 x_3 - 500 x_1^3 \alpha_2^{10} \\
& - 168 \alpha_2^4 x_1 x_2^2 \alpha_3^5 + 40 \alpha_2^2 x_1 x_4^2 \alpha_3^6 - 360 \alpha_2^6 x_1 x_4 x_2 \alpha_3^3 - 2790 \alpha_2^8 x_1 x_4 x_2 \alpha_3 \\
& + 322 \alpha_2^4 x_1 x_4^2 \alpha_3^4 - 50 \alpha_2^7 x_2^3 \alpha_3^3 + 88 \alpha_2^5 x_2^3 \alpha_3^4 + 180 \alpha_2^5 x_1 x_4 \alpha_3^4 \\
& + 120 \alpha_3^4 \alpha_2^5 x_1 x_3 x_2 + 966 \alpha_3^4 \alpha_2^5 x_1^2 x_2 - 40 \alpha_2 x_2 x_3^2 \alpha_3^7 - 80 \alpha_2^9 x_2^3 \\
& - 160 \alpha_2^8 x_4 x_3 x_2 + 3150 \alpha_2^9 x_2^2 x_4 - 2010 \alpha_2 x_1^2 x_2 \alpha_1^3 \alpha_3^5 + 5010 \alpha_2^3 x_1^2 x_2 \alpha_1^2 \alpha_3^4 \\
& - 3966 \alpha_2^5 x_1 x_2 \alpha_1^3 \alpha_3^3 + 2115 \alpha_2^3 x_1 x_4 \alpha_1^2 \alpha_3^4 - 4950 \alpha_2^5 x_1 x_4 \alpha_1^2 \alpha_3^3 \\
& - 3060 \alpha_2^3 x_1 x_4 \alpha_1^3 \alpha_3^3 + 8730 \alpha_2^5 x_1 x_4 \alpha_1^2 \alpha_3^2 - 8820 \alpha_2^7 x_1 x_4 \alpha_1 \alpha_3^2 \\
& + 1980 \alpha_2^2 \alpha_3^4 x_1 x_2 \alpha_1^3 - 4620 \alpha_2^4 \alpha_3^3 x_1 x_2^2 \alpha_1^2 + 3276 \alpha_2^6 \alpha_3^2 x_1 x_2^2 \alpha_1 \\
& + 4230 \alpha_1^3 \alpha_2^4 x_1 x_4 x_2 \alpha_3^2 - 9540 \alpha_1^2 \alpha_2^6 x_1 x_4 x_2 \alpha_3 + 5310 \alpha_1 \alpha_2^8 x_1 x_4 x_2 \\
& - 1188 \alpha_2^8 x_1^3 \alpha_3 - 88 \alpha_2^8 x_1^3 \alpha_1 - 500 \alpha_2^9 x_2 x_3^2 - 1144 x_1^3 \alpha_2^6 \alpha_3^3 + 960 x_1^3 \alpha_1^5 \alpha_3^4 \\
& - 1340 x_1^3 \alpha_1^4 \alpha_3^5 + 960 x_1^3 \alpha_1^3 \alpha_3^6 + 3150 \alpha_2^9 x_1^2 x_4 - 80 \alpha_2^8 x_1 x_4^2 - 80 x_1 x_3^2 \alpha_2^8 \\
& - 240 \alpha_2^9 x_1^2 x_2 + 24 \alpha_2^2 x_1 x_4^2 \alpha_3^4 \alpha_1^2 - 178 \alpha_2^4 x_1 x_4^2 \alpha_3^3 \alpha_1 - 3732 x_1 x_3^2 \alpha_1 \alpha_3^3 \alpha_2^4 \\
& + 2725 \alpha_2^7 x_2 x_3 \alpha_1^2 - 1635 \alpha_2^8 x_3 x_2 \alpha_3^2 + 322 \alpha_2^6 x_1 x_4 \alpha_3^2 + 966 \alpha_2^7 x_1 x_2 \alpha_3^2 \\
& - 636 \alpha_2^8 \alpha_3 x_1 x_2^2 + 2835 \alpha_2^7 x_1^2 x_4 \alpha_1^2 + 540 \alpha_1^4 \alpha_2^2 x_3 x_2^2 \alpha_3^3 \\
& - 4818 \alpha_2^3 x_1^2 x_2 \alpha_1^3 \alpha_3^3 + 3366 \alpha_2^5 x_1^2 x_2 \alpha_1^2 \alpha_3^2 - 318 \alpha_2^7 x_1^2 x_2 \alpha_1 \alpha_3 \\
& + 2010 \alpha_2 x_1^2 x_2 \alpha_1^4 \alpha_3^4 - 1340 x_1 x_3^2 \alpha_1^3 \alpha_3^5 + 1510 x_1 x_3^2 \alpha_3^2 \alpha_2^6 \\
& + 960 x_1 x_3^2 \alpha_1^4 \alpha_3^4 - 2640 \alpha_2^3 x_1 x_3 x_2 \alpha_1^3 \alpha_3^3 + 4260 \alpha_2^5 x_1 x_3 x_2 \alpha_1^2 \alpha_3^2 \\
& + 1890 \alpha_2^3 x_1 x_3 x_2 \alpha_1^4 \alpha_3^2 - 3540 \alpha_2^5 x_1 x_3 x_2 \alpha_1^3 \alpha_3 + 1650 \alpha_2^7 x_1 x_3 x_2 \alpha_1^2 \\
& + 480 \alpha_2^7 x_1 x_3 x_2 \alpha_1 \alpha_3 + 3746 x_1 x_3^2 \alpha_1^2 \alpha_3^4 \alpha_2^2 - 4152 \alpha_2^3 x_1 x_4 x_3 \alpha_3^3 \alpha_1^2 \\
& + 4820 \alpha_2^5 x_1 x_4 x_3 \alpha_3^2 \alpha_1 - 580 \alpha_2 x_1 x_4 x_3 \alpha_1^4 \alpha_3^3 + 1912 x_1 x_3^2 \alpha_2^4 \alpha_1^2 \alpha_3^2 \\
& - 98 x_1 x_3^2 \alpha_2^6 \alpha_1 \alpha_3 + 9800 \alpha_1^3 \alpha_2^4 x_4 x_3 x_2 \alpha_3^2 - 9300 \alpha_1^2 \alpha_2^6 x_4 x_3 x_2 \alpha_3 \\
& + 2200 \alpha_1 \alpha_2^8 x_4 x_3 x_2 - 2700 \alpha_1^4 \alpha_2^2 x_4 x_3 x_2 \alpha_3^3 - 2376 \alpha_2^7 x_1 x_4 x_3 \alpha_3 \\
& + 1340 \alpha_2 x_1 x_4 x_3 \alpha_3^4 \alpha_1^3 + 630 \alpha_2^7 x_1 x_3 x_2 \alpha_3^2 + 2250 \alpha_2 x_2 x_3^2 \alpha_1^4 \alpha_3^4 \\
& - 6375 \alpha_2^3 x_2 x_3^2 \alpha_1^3 \alpha_3^3 + 4400 \alpha_2^5 x_2 x_3^2 \alpha_1^2 \alpha_3^2 - 1950 \alpha_2 x_2 x_3^2 \alpha_1^5 \alpha_3^3 \\
& + 6075 \alpha_2^3 x_2 x_3 \alpha_1^4 \alpha_3^2 - 6850 \alpha_2^5 x_2 x_3 \alpha_1^2 \alpha_3^3 + 225 \alpha_2^7 x_2 x_3 \alpha_1 \alpha_3^2 \\
& - 45 \alpha_1^3 \alpha_2^4 x_3 x_2^2 \alpha_3^2 - 1710 \alpha_1^2 \alpha_2^6 x_3 x_2^2 \alpha_3 - 2258 x_1 x_3^2 \alpha_3^5 \alpha_2^2 \alpha_1 \\
& + 1466 x_1 x_3^2 \alpha_3^4 \alpha_2^4 - 2100 \alpha_2^9 x_1 x_3 x_2 + 470 \alpha_2^2 x_1 x_4^2 \alpha_1^3 \alpha_3^3 \\
& - 1288 \alpha_2^4 x_1 x_4^2 \alpha_1^2 \alpha_3^2 + 1082 \alpha_2^6 x_1 x_4^2 \alpha_1 \alpha_3 + 1110 \alpha_2^3 x_1 x_3 x_2 \alpha_1^2 \alpha_3^4
\end{aligned}$$

$$\begin{aligned}
& -1740 \alpha_2^5 x_1 x_3 x_2 \alpha_1 \alpha_3^3 - 1340 \alpha_2 x_1 x_4 x_3 \alpha_3^5 \alpha_1^2 + 3292 \alpha_2^3 x_1 x_4 x_3 \alpha_3^4 \alpha_1 \\
& - 2288 \alpha_2^5 x_1 x_4 x_3 \alpha_3^3 + 1888 \alpha_2^3 x_1 x_4 x_3 \alpha_1^3 \alpha_3^2 - 1580 \alpha_2^5 x_1 x_4 x_3 \alpha_1^2 \alpha_3 \\
& - 16 \alpha_2^7 x_1 x_4 x_3 \alpha_1 - 360 \alpha_2^2 x_3 x_2^2 \alpha_3^4 \alpha_1^3 - 555 \alpha_2^4 x_3 x_2^2 \alpha_3^3 \alpha_1^2 \\
& + 2550 \alpha_2^6 x_3 x_2^2 \alpha_3^2 \alpha_1 - 2550 x_1 x_3^2 \alpha_2^2 \alpha_1^3 \alpha_3^3 - 5808 \alpha_2^4 x_1^3 \alpha_3^3 \alpha_1^2 \\
& + 3920 \alpha_2^6 x_1^3 \alpha_3^2 \alpha_1 + 2856 \alpha_2^4 x_1^3 \alpha_1^3 \alpha_3^2 - 888 \alpha_2^6 x_1^3 \alpha_1^2 \alpha_3 + 1215 \alpha_1 \alpha_2^8 x_3 x_2^2 \\
& - 2928 x_1^3 \alpha_2^2 \alpha_3^5 \alpha_1^2 + 3112 x_1^3 \alpha_2^4 \alpha_3^4 \alpha_1 - 2840 x_1^3 \alpha_1^4 \alpha_3^3 \alpha_2^2 \\
& + 4416 x_1^3 \alpha_1^3 \alpha_3^4 \alpha_2^2 + 960 x_1 x_3^2 \alpha_3^6 \alpha_1^2 - 120 \alpha_1^6 \alpha_3^2 \alpha_2^2 x_1 x_3 \\
& - 450 \alpha_1^6 \alpha_3^2 \alpha_2^2 x_1 x_4^2 - 1200 \alpha_1^6 \alpha_3^3 \alpha_2^2 x_1 x_2 - 32 \alpha_1^6 \alpha_3^3 x_1^3 \alpha_2^2 \\
& + 120 \alpha_1^5 x_3 x_1^2 \alpha_2^4 + 1350 \alpha_1^5 \alpha_2^4 x_1^3 \alpha_3 - 330 \alpha_1^5 \alpha_3^3 x_1 x_3^2 + 684 \alpha_1^5 \alpha_3^2 x_1^3 \alpha_2^2 \\
& + 450 \alpha_1^5 \alpha_2^4 x_1 x_4^2 + 600 \alpha_1^5 \alpha_2^5 x_1^2 x_2 + 40 \alpha_1^7 x_1^3 \alpha_3^2 + 600 \alpha_1^6 \alpha_3^2 \alpha_2^2 x_2 x_3^2 \\
& + 120 \alpha_1^6 \alpha_3^2 \alpha_2^2 x_1^2 x_2 + 750 \alpha_1^6 \alpha_3^2 \alpha_2^2 x_1 x_2^2 - 1950 \alpha_1^6 \alpha_3^3 \alpha_2^2 x_1^2 x_2 \\
& - 675 \alpha_1^6 \alpha_3^2 x_1^3 \alpha_2^2 + 40 \alpha_1^6 \alpha_3^2 x_1 x_3^2 + 80 \alpha_1^4 \alpha_2^4 x_2 x_4 x_3 \alpha_3^2 \\
& - 1725 \alpha_1^4 \alpha_2^2 x_1^2 x_3 \alpha_3^3 - 6600 \alpha_1^4 \alpha_3^4 \alpha_2^5 x_1^2 x_2 - 1650 \alpha_1^4 \alpha_3^4 x_3 x_1^2 \alpha_2^4 \\
& - 1350 \alpha_1^4 \alpha_3^2 \alpha_2^3 x_1 x_4 x_3 + 450 \alpha_1^4 \alpha_3^3 \alpha_2^2 x_1 x_4^2 - 282 \alpha_1^4 \alpha_2^4 x_1^3 \alpha_3 \\
& - 1575 \alpha_1^4 x_1^3 \alpha_2^2 \alpha_3^4 + 825 \alpha_1^4 \alpha_3^2 \alpha_2^2 x_3^3 + 600 \alpha_1^4 \alpha_2^5 x_2 x_3^2 \\
& + 6225 \alpha_1^5 \alpha_2^3 x_1^2 x_2 \alpha_3^2 - 1500 \alpha_1^5 \alpha_2^4 \alpha_3 x_1 x_2^2 + 1800 \alpha_1^4 \alpha_3^3 \alpha_2^2 x_1 x_3^2 \\
& - 5475 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_1^2 x_2 - 1050 \alpha_1^4 \alpha_2^4 x_1^2 x_2 \alpha_3^5 + 2250 \alpha_1^4 \alpha_3^4 \alpha_2^2 x_1 x_2^2 \\
& - 96 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_1^2 x_2 + 192 \alpha_1^5 \alpha_3^2 \alpha_2^2 x_1 x_2^2 - 550 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_2 x_4^2 \\
& + 50 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_2^3 - 120 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_3^3 - 240 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_1 x_3 x_2 \\
& - 32 \alpha_1^5 \alpha_3^2 \alpha_2^2 x_1 x_3^2 + 80 \alpha_1^5 \alpha_3^2 \alpha_2^2 x_1 x_4 x_3 - 240 \alpha_1^5 \alpha_3^2 \alpha_2^2 x_2^2 x_3 \\
& - 675 \alpha_1^4 x_1^3 \alpha_2^6 - 870 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_1^2 x_2 + 900 \alpha_1^5 \alpha_2^3 x_1 x_4 x_3 \alpha_3 \\
& + 1800 \alpha_1^5 x_1^3 \alpha_2^2 \alpha_3^3 - 2250 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_1 x_2^2 + 40 \alpha_1^5 \alpha_3^2 \alpha_2^2 x_2 x_3^2 \\
& - 240 \alpha_1^5 \alpha_3^2 \alpha_2^2 x_4 x_3 + 72 \alpha_1^5 \alpha_3^2 \alpha_2^2 x_1 x_4^2 - 1200 \alpha_1^5 \alpha_2^3 x_2 x_3^2 \alpha_3 \\
& - 360 \alpha_1^5 \alpha_2^3 x_1 x_4 \alpha_3 + 825 \alpha_1^5 x_3 x_1^2 \alpha_3^2 \alpha_2^2 + 2250 \alpha_1^5 \alpha_2^2 x_1^2 x_2 \alpha_3^4 \\
& - 675 \alpha_1^5 x_1 x_3 \alpha_3^2 \alpha_2^2 + 450 \alpha_1^5 \alpha_2^2 x_1 x_4 \alpha_3^2 + 600 \alpha_1^7 \alpha_3^2 \alpha_2^2 x_1 x_2^2 \\
& + 1200 \alpha_1^5 \alpha_2^2 x_2 x_4 x_3 \alpha_3^2 - 8 \alpha_1^5 x_1^3 \alpha_2^4 + 16 \alpha_1^2 \alpha_2^7 x_2^3 + 2364 \alpha_1^3 \alpha_3^2 \alpha_2^4 x_1 x_2^2 \\
& + 500 \alpha_1^3 \alpha_3^2 \alpha_2^3 x_2 x_3^2 - 500 \alpha_1^3 \alpha_3^3 \alpha_2^2 x_4 x_3 x_2 - 486 \alpha_1^3 \alpha_3^5 \alpha_2^2 x_1^2 x_2 \\
& + 628 \alpha_1^3 \alpha_3^4 \alpha_2^2 x_1 x_4^2 - 332 \alpha_1^3 \alpha_3^2 \alpha_2^3 x_2 x_4^2 + 1200 \alpha_1^3 \alpha_3^2 \alpha_2^5 x_1^2 x_2
\end{aligned}$$

$$\begin{aligned}
& -6200 \alpha_1^3 \alpha_3^2 x_1 x_3^2 \alpha_2^4 - 1050 \alpha_1^3 \alpha_2 x_2 x_3^2 \alpha_3^5 + 450 \alpha_1^3 \alpha_3^3 \alpha_2^3 x_2^2 x_4 \\
& -450 \alpha_1^3 \alpha_3 \alpha_2^4 x_4^2 x_3 - 10200 \alpha_1^3 \alpha_3 \alpha_2^6 x_1 x_2^2 - 2450 \alpha_1^3 \alpha_3^2 \alpha_2^4 x_1 x_4^2 \\
& -4725 \alpha_1^3 \alpha_3^3 \alpha_2^4 x_1 x_2^2 - 1575 \alpha_1^3 \alpha_2^2 x_1 x_3^2 \alpha_3^4 + 1350 \alpha_1^3 \alpha_3^3 \alpha_2^3 x_1 x_4 x_3 \\
& + 825 \alpha_1^3 \alpha_2^3 x_2^3 \alpha_3^4 - 750 \alpha_1^3 \alpha_2^2 x_1 x_2^2 \alpha_3^5 + 8350 \alpha_1^3 \alpha_3^3 x_1^3 \alpha_2^6 \\
& + 4525 \alpha_1^3 x_1^3 \alpha_2^4 \alpha_3^3 + 450 \alpha_1^3 x_1^3 \alpha_2^2 \alpha_3^5 - 582 \alpha_1^3 \alpha_3^3 \alpha_2^3 x_2^3 \\
& + 2750 \alpha_1^3 \alpha_3^2 \alpha_2^5 x_2^3 + 450 \alpha_1^3 \alpha_3^2 \alpha_2^3 x_4^3 + 1250 \alpha_1^3 \alpha_2^6 x_1 x_4^2 \\
& - 1770 \alpha_1^3 \alpha_3 \alpha_2^4 x_3^3 - 225 \alpha_1^3 \alpha_2^6 x_1 x_3^2 + 180 \alpha_1^3 \alpha_2^5 x_4^3 - 75 \alpha_1^3 \alpha_2^3 x_2^2 x_4^2 \alpha_3^3 \\
& + 1515 \alpha_1^3 \alpha_2^2 x_1^2 x_3 \alpha_3^4 + 3855 \alpha_1^3 \alpha_2^4 x_1^2 x_3 \alpha_3^2 - 450 \alpha_1^3 \alpha_2^2 x_1 x_4^2 \alpha_3^4 \\
& + 50 \alpha_1^3 \alpha_2^7 x_2^3 - 1725 \alpha_1^3 \alpha_2^2 x_3^3 \alpha_3^3 + 670 \alpha_1^3 \alpha_2 x_2^2 x_3^2 \alpha_3^4 \\
& + 1800 \alpha_1^3 \alpha_2^2 x_4 x_3 x_2^4 \alpha_3^4 - 360 \alpha_1^3 \alpha_2^2 x_4^2 x_3^3 \alpha_3^3 + 240 \alpha_1^4 \alpha_2^4 x_3^2 \alpha_3^2 \\
& - 404 \alpha_1^4 \alpha_2^2 x_1 x_4^2 \alpha_3^2 + 1620 \alpha_1^4 \alpha_2^3 x_1^2 x_2 \alpha_3^2 + 750 \alpha_1^4 \alpha_2^6 x_1 x_2^2 \\
& + 550 \alpha_1^4 \alpha_2^5 x_2^2 x_4^2 + 120 \alpha_1^4 \alpha_2^4 x_4^2 x_3^2 - 900 \alpha_1^4 \alpha_2^5 x_1 x_4 x_3 - 360 \alpha_1^4 \alpha_3^2 \alpha_2^3 x_2^2 x_4 \\
& - 290 \alpha_1^4 \alpha_2^2 x_2 x_3^2 \alpha_3^3 - 32 \alpha_1^4 \alpha_2^4 x_2 x_3^2 \alpha_3 - 120 \alpha_1^4 \alpha_3 \alpha_2^3 x_3^2 x_4 \\
& + 644 \alpha_1^4 x_1^2 x_3^2 \alpha_3^2 \alpha_2^2 - 192 \alpha_1^4 \alpha_2^4 \alpha_3 x_1 x_2^2 + 150 \alpha_1^3 \alpha_2 x_1^2 x_2 \alpha_3^6 \\
& + 900 \alpha_1^3 \alpha_2^3 x_1^2 x_2 \alpha_3^4 - 72 \alpha_1^3 x_1^3 \alpha_2^6 + 72 \alpha_1^4 \alpha_3 \alpha_2^3 x_2^2 x_4^2 \\
& - 720 \alpha_1^4 \alpha_3 \alpha_2^4 x_1 x_4 x_2 - 1300 \alpha_1^4 \alpha_3 \alpha_2^4 x_2 x_4 x_3 - 360 \alpha_1^4 \alpha_3 \alpha_2^3 x_4^3 \\
& - 24 \alpha_1^4 \alpha_2^5 x_1^2 x_2 + 112 \alpha_1^4 \alpha_3^2 \alpha_2^3 x_2^3 - 100 \alpha_1^4 \alpha_3 \alpha_2^5 x_2^3 + 360 \alpha_1^4 \alpha_2^5 x_1^2 x_4 \\
& - 24 \alpha_1^4 \alpha_2^4 x_1 x_4^2 - 8 \alpha_1^4 x_1 x_3^2 \alpha_2^4 + 900 \alpha_1^4 \alpha_3 x_1 x_3^2 \alpha_2^4 + 240 \alpha_1^4 \alpha_2^5 x_1 x_3 x_2 \\
& - 825 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_2^3 - 1194 \alpha_1^4 \alpha_3^4 \alpha_2^2 x_1 x_2^2 - 208 \alpha_1^4 \alpha_2^4 x_1 x_4 x_3 \alpha_3 \\
& + 120 \alpha_1^4 \alpha_2^4 x_3^3 - 1700 \alpha_1^4 \alpha_3 \alpha_2^4 x_1 x_4^2 + 525 \alpha_1^4 \alpha_3 \alpha_2^3 x_2^2 x_4^2 \\
& + 8475 \alpha_1^4 \alpha_3^2 \alpha_2^4 x_1 x_2^2 + 540 \alpha_1^4 \alpha_3^2 \alpha_2^2 x_4^2 x_3^2 + 2475 \alpha_1^3 \alpha_2^3 x_4^2 \alpha_3^4 \\
& + 10515 \alpha_1^5 \alpha_2^2 x_4^2 \alpha_3^2 - 360 \alpha_1^5 \alpha_2^2 x_4^3 \alpha_3^3 + 1110 \alpha_1^4 \alpha_2^2 x_1^2 x_3^4 \alpha_3^4 \\
& - 1532 \alpha_1^4 \alpha_2^4 x_4 x_3 x_2^3 \alpha_3^3 - 500 \alpha_1^2 \alpha_2^2 x_4 x_3 x_2^5 \alpha_3^5 + 600 \alpha_1^4 \alpha_2^4 x_4 x_3 x_2 \alpha_3^4 \\
& - 1000 \alpha_1^5 \alpha_2^2 x_2 x_3^2 \alpha_3^3 + 394 \alpha_1^5 \alpha_2^2 x_2 x_3^2 \alpha_3^2 - 1836 \alpha_1^3 \alpha_2^2 x_1^2 x_2^5 \alpha_3^5 \\
& - 300 \alpha_1^3 \alpha_2^2 x_2 x_3^2 \alpha_3^5 + 1250 \alpha_1^3 \alpha_2^2 x_2 x_3^2 \alpha_3^4 - 2925 \alpha_1^4 \alpha_2^2 x_4^2 x_3^3 \alpha_3^3 \\
& - 7725 \alpha_1^6 \alpha_2^2 x_4^2 x_3 \alpha_3^3 - 120 \alpha_1^2 \alpha_2^2 x_1^2 x_2 \alpha_3^7 + 40 \alpha_1 x_1^3 \alpha_3^8 + 1170 \alpha_1^2 \alpha_3^2 \alpha_2^5 x_2^2 x_4 \\
& - 7590 \alpha_1^2 \alpha_3 \alpha_2^5 x_3^2 x_4 + 180 \alpha_1^2 \alpha_2^7 x_2^2 x_4 - 264 \alpha_1^2 \alpha_2^7 x_1^2 x_2 - 330 \alpha_1^2 x_1^3 \alpha_3^7 \\
& - 30 \alpha_1^2 \alpha_2^6 x_4^2 x_3 - 3025 \alpha_1^2 \alpha_3 \alpha_2^7 x_2^3 - 495 \alpha_1^2 \alpha_3 \alpha_2^5 x_4^3 + 3975 \alpha_1^2 \alpha_2^8 x_1 x_2^2
\end{aligned}$$

$$\begin{aligned}
& -2950 \alpha_1^2 \alpha_2^7 x_1 x_4 x_3 + 32 \alpha_1^2 \alpha_2^6 x_4 x_3 x_2 + 165 \alpha_1 \alpha_2^8 x_1^2 x_3 - 330 \alpha_1 x_1 x_3^2 \alpha_3^7 \\
& -555 \alpha_1 \alpha_2^2 x_3^3 \alpha_3^5 - 975 \alpha_1 \alpha_2^6 x_3^3 \alpha_3 - 2595 \alpha_1 \alpha_2^4 x_3^3 \alpha_3^3 + 2125 \alpha_1 \alpha_2^7 x_2^3 \alpha_3^2 \\
& + 945 \alpha_1 \alpha_2^5 x_4^3 \alpha_3^2 - 954 \alpha_1^2 \alpha_3 \alpha_2^6 x_1 x_2^2 - 58 \alpha_1^2 \alpha_3 \alpha_2^5 x_2 x_3^2 \\
& + 1456 \alpha_1^2 \alpha_3^2 \alpha_2^4 x_2 x_4 x_3 + 460 \alpha_1^2 \alpha_3 \alpha_2^5 x_2 x_4^2 + 1625 \alpha_1^2 \alpha_2^7 x_2 x_4^2 \\
& + 3850 \alpha_1^2 \alpha_3^3 x_1 x_3^2 \alpha_2^4 - 670 \alpha_1^2 \alpha_2 x_2 x_3^2 \alpha_3^5 - 2300 \alpha_1^2 \alpha_2^5 x_2^3 \alpha_3^3 \\
& + 1188 \alpha_1^2 \alpha_3^2 \alpha_2^5 x_2^3 + 150 \alpha_1^2 \alpha_2 x_2 x_3^2 \alpha_3^6 - 80 \alpha_1^2 \alpha_2^6 x_1 x_4^2 - 88 \alpha_1^2 \alpha_2^6 x_1 x_3^2 \\
& + 2100 \alpha_1^2 \alpha_3^3 \alpha_2^5 x_1 x_2^2 + 1485 \alpha_1^2 \alpha_3^2 \alpha_2^4 x_1 x_4^2 + 60 \alpha_1^2 \alpha_3^2 \alpha_2^5 x_2^2 x_3^2 \\
& - 2790 \alpha_1^2 \alpha_3^3 \alpha_2^4 x_1 x_4 x_2 - 6875 \alpha_1^4 \alpha_3^2 x_1^3 \alpha_2^4 + 5025 \alpha_1^2 \alpha_3 \alpha_2^7 x_1^2 x_2^2 \\
& - 3200 \alpha_1^2 \alpha_3^2 \alpha_2^5 x_1 x_4 x_3 + 1800 \alpha_1^2 \alpha_2^4 x_1 x_2^2 \alpha_3^4 + 3300 \alpha_1^2 \alpha_3 \alpha_2^6 x_1 x_4^2 \\
& + 1200 \alpha_1^2 \alpha_3^2 \alpha_2^6 x_1 x_2^2 + 6200 \alpha_1^2 \alpha_3 \alpha_2^6 x_1 x_3^2 + 450 \alpha_1^2 \alpha_2^2 x_1 x_3^2 \alpha_3^5 \\
& - 900 \alpha_1^2 \alpha_3^4 \alpha_2^3 x_1 x_4 x_3 - 1146 \alpha_1^2 \alpha_2^2 x_1 x_2^2 \alpha_3^5 - 555 \alpha_1^2 \alpha_2^2 x_1^2 x_3^2 \alpha_3^5 \\
& - 4825 \alpha_1^2 \alpha_3^2 x_1^3 \alpha_2^6 - 50 \alpha_1^2 \alpha_2^3 x_2^3 \alpha_3^5 - 1250 \alpha_1^2 x_1^3 \alpha_2^4 \alpha_3^4 \\
& - 900 \alpha_1^2 \alpha_2^5 x_2 x_4^2 \alpha_3^2 + 138 \alpha_1^2 \alpha_2^3 x_2 x_4^2 \alpha_3^3 + 100 \alpha_1^2 \alpha_2^3 x_2 x_4^2 \alpha_3^4 \\
& - 3555 \alpha_1^2 \alpha_2^4 x_1^2 x_3 \alpha_3^3 - 2295 \alpha_1^2 \alpha_2^6 x_1^2 x_3 \alpha_3 - 4980 \alpha_1^2 \alpha_2^3 x_2^2 x_4 \alpha_3^3 \\
& - 2800 \alpha_1^2 \alpha_2^4 x_4 x_3 x_2 \alpha_3^3 - 300 \alpha_1^2 \alpha_2^2 x_4 x_3 x_2 \alpha_3^5 - 3275 \alpha_1^2 x_1^3 \alpha_2^8 \\
& - 1356 \alpha_1^2 \alpha_2^3 x_2 x_3^2 \alpha_3^3 + 840 \alpha_1^2 \alpha_2^2 x_4 x_3 x_2 \alpha_3^4 - 90 \alpha_1^2 \alpha_2^3 x_2 x_4^2 \alpha_3^4 \\
& + 3450 \alpha_1^2 \alpha_2^4 x_3^3 \alpha_3^2 + 558 \alpha_1^2 \alpha_2^3 x_2^3 \alpha_3^4 + 825 \alpha_1^3 \alpha_2^6 x_1 x_3^2 - 90 \alpha_1^2 \alpha_2^3 x_4^3 \alpha_3^3 \\
& + 1515 \alpha_1^2 \alpha_2^2 x_3^3 \alpha_3^4 + 32 \alpha_1^3 \alpha_2^5 x_1 x_4 x_3 + 3735 \alpha_1^2 \alpha_2^4 x_4 x_3 \alpha_3^2 \\
& + 60 \alpha_1^2 \alpha_2^2 x_4 x_3 \alpha_3^4 + 870 \alpha_1^2 \alpha_2 x_1 x_2 \alpha_3^6 - 450 \alpha_1^2 \alpha_2^3 x_1 x_2 \alpha_3^5 \\
& + 1800 \alpha_1^2 \alpha_2^3 x_2 x_3^2 \alpha_3^4 + 2925 \alpha_1^3 \alpha_3^2 \alpha_2^3 x_3^2 x_4 + 720 \alpha_1^3 \alpha_2^6 x_1 x_4 x_2 \\
& + 360 \alpha_1^3 \alpha_2^5 x_3^2 x_4 - 8 \alpha_1^3 \alpha_2^5 x_2 x_3^2 - 128 \alpha_1^3 \alpha_3 \alpha_2^5 x_2^3 - 178 \alpha_1^3 \alpha_3 x_1 x_3^2 \alpha_2^4 \\
& + 4300 \alpha_1^3 \alpha_3 \alpha_2^5 x_1 x_4 x_3 - 2150 \alpha_1^3 \alpha_3 \alpha_2^5 x_2 x_4^2 + 100 \alpha_1^3 \alpha_2^6 x_4 x_3 x_2 \\
& - 208 \alpha_1^3 \alpha_3 \alpha_2^4 x_2 x_4 x_3 + 180 \alpha_1^3 \alpha_3 \alpha_2^5 x_2^2 x_4 + 2325 \alpha_1^3 \alpha_2^7 x_1^2 x_2^2 \\
& - 24 \alpha_1^3 \alpha_2^5 x_2 x_4^2 + 1600 \alpha_1 \alpha_2^5 x_1 x_4 x_3 \alpha_3^3 - 2700 \alpha_1 \alpha_2^7 x_1^2 x_2^2 \alpha_3^2 \\
& + 2775 \alpha_1 \alpha_2^8 \alpha_3 x_1 x_2^2 - 3225 \alpha_1 x_1 x_3^2 \alpha_3^2 \alpha_2^6 + 2850 \alpha_1 \alpha_2^7 x_1 x_4 x_3 \alpha_3 \\
& + 5085 \alpha_1 \alpha_2^7 x_3^2 x_4 - 1450 \alpha_1 \alpha_2^6 x_1 x_4^2 \alpha_3^2 - 800 \alpha_1 x_1 x_3^2 \alpha_3^4 \alpha_2^4 \\
& - 1004 \alpha_1 \alpha_3 \alpha_2^6 x_4 x_3 x_2 + 450 \alpha_1 \alpha_3^4 \alpha_2^5 x_1^2 x_2 - 180 \alpha_1 \alpha_2^3 x_1^2 x_4 \alpha_3^5 \\
& + 5580 \alpha_1 \alpha_2^6 x_1 x_4 x_2 \alpha_3^2 - 1800 \alpha_1 x_1 x_3^2 \alpha_2^8 + 360 \alpha_1 \alpha_2^4 x_1 x_4 x_2 \alpha_3^4
\end{aligned}$$

$$\begin{aligned}
& + 2436 \alpha_1 \alpha_2^4 x_1 x_2^2 \alpha_3^4 + 168 \alpha_1 \alpha_2^2 x_1 x_2^2 \alpha_3^6 - 3330 \alpha_1 \alpha_2^5 x_1^2 x_4 \alpha_3^3 \\
& + 290 \alpha_1 \alpha_2 x_2 x_3^2 \alpha_3^6 - 4770 \alpha_1 \alpha_2^7 \alpha_3 x_2^2 x_4 - 3000 \alpha_1 \alpha_2^9 x_1^2 x_2 - 104 \alpha_1 \alpha_2^7 x_2 x_3^2 \\
& - 202 \alpha_1 \alpha_2^2 x_1 x_4^2 \alpha_3^5 - 1350 \alpha_1 \alpha_3^3 \alpha_2^6 x_1 x_2^2 - 88 \alpha_1 \alpha_2^3 x_2^3 \alpha_3^5 \\
& + 740 \alpha_1 x_1^3 \alpha_2^2 \alpha_3^6 + 100 \alpha_1 \alpha_2^5 x_2^3 \alpha_3^4 - 1196 \alpha_1 \alpha_2^5 x_2^3 \alpha_3^3 - 24 \alpha_1 \alpha_2^7 x_2 x_4^2 \\
& - 526 \alpha_1 \alpha_3 \alpha_2^7 x_2^3 - 216 \alpha_1 \alpha_2^8 x_1 x_2^2 + 2375 \alpha_1 \alpha_2^8 x_1^3 \alpha_3 + 1150 \alpha_1 x_1^3 \alpha_2^6 \alpha_3^3 \\
& - 1300 \alpha_1 \alpha_2^8 x_1 x_4^2 - 120 \alpha_1 \alpha_2^3 x_1 x_3 x_2 \alpha_3^5 + 180 \alpha_1 \alpha_3^4 \alpha_2^4 x_2 x_3 + 1100 \alpha_1 \alpha_2^9 x_2^9 x_3^3 \\
& + 1450 \alpha_1^2 \alpha_2^4 x_1 x_4^2 \alpha_3^3 + 1300 \alpha_1 \alpha_2^6 x_4 x_3 x_2 \alpha_3^2 + 1475 \alpha_1 \alpha_2^7 x_2 x_4^2 \alpha_3 \\
& - 200 \alpha_1 \alpha_2^5 x_2 x_4^2 \alpha_3^3 + 162 \alpha_1 \alpha_2^3 x_2 x_4^2 \alpha_3^4 + 2625 \alpha_1 \alpha_2^6 x_1^2 x_3 \alpha_3^2 \\
& + 60 \alpha_1 \alpha_2^2 x_1^2 x_3 \alpha_3^6 - 495 \alpha_1 \alpha_2^7 x_4^3 + 825 \alpha_1^2 \alpha_2^6 x_3^3 + 580 \alpha_1 \alpha_2 x_1 x_4 x_3 \alpha_3^6 \\
& - 430 \alpha_1 \alpha_2^5 x_2 x_4^2 \alpha_3^2 - 330 \alpha_1^6 \alpha_3^3 x_1^3 \Big/ ((\alpha_1^2 \alpha_3^2 - 2 \alpha_2^2 \alpha_1 \alpha_3 + \alpha_2^4) \\
& (4 \alpha_1^2 - 17 \alpha_1 \alpha_3 + 4 \alpha_3^2 + 25 \alpha_2^2) (\alpha_1^4 - 4 \alpha_1^3 \alpha_3 + 8 \alpha_1^2 \alpha_2^2 + 6 \alpha_1^2 \alpha_3^2 - 4 \alpha_1 \alpha_3^3 \\
& - 16 \alpha_2^2 \alpha_1 \alpha_3 + 16 \alpha_2^4 + 8 \alpha_3^2 \alpha_2^2 + \alpha_3^4)), - \frac{1}{24} \beta^2 (300 \alpha_2^5 x_4 x_3 x_2 \alpha_3^4 \\
& + 1000 \alpha_2^7 x_4 x_3 x_2 \alpha_3^2 + 1644 \alpha_2^5 x_4 x_3 x_2 \alpha_3^3 + 176 \alpha_2^3 x_4 x_3 x_2 \alpha_3^5 + 180 \alpha_3^5 \alpha_2^3 x_3^3 \\
& + 1050 \alpha_2^8 x_4^3 - 80 x_4 x_3 x_1 \alpha_3^6 \alpha_2^2 - 644 x_4 x_3 x_1 \alpha_3^4 \alpha_2^4 + 300 x_4 x_3 x_1 \alpha_3^3 \alpha_2^6 \\
& - 644 x_4 x_3 x_1 \alpha_2^6 \alpha_3^2 + 240 \alpha_2^9 x_1 x_2^2 + 150 \alpha_3^3 \alpha_2^7 x_1^3 + 150 \alpha_2^9 x_1^3 \alpha_3 \\
& - 2400 \alpha_3^3 \alpha_2^5 x_4^2 x_3 - 240 \alpha_3^5 \alpha_2^3 x_4^2 x_3 + 80 \alpha_2^8 x_2 x_4^2 + 120 \alpha_2^4 x_4^3 \alpha_3^4 \\
& + 1348 \alpha_2^8 x_2^3 \alpha_3 + 500 \alpha_2^9 x_1 x_4^2 + 1290 x_1^2 x_2 \alpha_2^6 \alpha_3^3 + 1080 \alpha_2^6 x_4^3 \alpha_3^2 \\
& + 80 x_3^2 x_2 \alpha_2^8 + 50 \alpha_2^6 x_2^3 \alpha_3^4 - 210 \alpha_2^6 x_2^2 x_4 \alpha_3^3 + 120 x_4 x_3^2 \alpha_3^6 \alpha_2^2 \\
& + 160 x_4 x_3 x_1 \alpha_2^8 + 300 x_1^2 x_2 \alpha_2^8 \alpha_3^2 + 240 \alpha_2^5 x_1 x_4 x_2 \alpha_3^4 + 168 x_1^2 x_2 \alpha_2^4 \alpha_3^5 \\
& + 550 \alpha_2^8 x_2^3 \alpha_3^2 + 184 \alpha_2^6 x_2^3 \alpha_3^3 + 1050 x_4 x_3^2 \alpha_2^4 \alpha_3^4 - 322 \alpha_2^5 x_1^3 \alpha_3^4 \\
& - 1290 x_1^2 x_4 \alpha_2^6 \alpha_3^3 - 40 \alpha_2^3 x_1^3 \alpha_3^6 + 150 x_1^2 x_2 \alpha_2^6 \alpha_3^4 + 2536 \alpha_2^7 x_4 x_3 x_2 \alpha_3 \\
& - 32 \alpha_1^2 x_4 x_3 x_1 \alpha_2^6 + 88 \alpha_1^2 \alpha_2^7 x_1^3 + 1164 \alpha_1^2 \alpha_2^3 x_4 x_3 x_2 \alpha_3^3 + 30 \alpha_1^2 \alpha_2^2 x_4^3 \alpha_3^4 \\
& + 450 \alpha_1^2 \alpha_2^3 x_1^3 \alpha_3^5 - 1575 \alpha_1^2 x_1^2 x_2 \alpha_2^8 + 1400 \alpha_1^2 \alpha_2^4 x_2^3 \alpha_3^4 \\
& + 6850 \alpha_1^3 \alpha_3 \alpha_2^5 x_1 x_3^2 + 2150 \alpha_1^3 \alpha_3 \alpha_2^5 x_1 x_4^2 + 300 \alpha_1^2 \alpha_2 x_4 x_3 x_2 \alpha_3^6 \\
& + 4300 \alpha_1^2 \alpha_2^3 x_4 x_3 x_2 \alpha_3^4 - 1950 \alpha_1^3 x_1^2 x_2 \alpha_2^6 \alpha_3 - 3540 \alpha_1^3 \alpha_3 \alpha_2^4 x_4 x_3^2 \\
& + 980 \alpha_1^2 \alpha_2^4 x_2^3 \alpha_3^3 + 50 \alpha_1^2 \alpha_2^2 x_2^3 \alpha_3^6 - 290 \alpha_1^2 \alpha_2 x_1^3 \alpha_3^6 - 150 \alpha_1^2 x_2 x_3^2 \alpha_3^7 \\
& + 1035 \alpha_1^2 \alpha_2^4 x_4^3 \alpha_3^2 + 75 \alpha_1^3 \alpha_2^3 x_1 x_4^2 \alpha_3^3 + 8 \alpha_1^3 \alpha_2^5 x_1 x_3^2 + 180 \alpha_1^3 \alpha_2^6 x_2^2 x_4
\end{aligned}$$

$$\begin{aligned}
& + 180 \alpha_1^3 \alpha_2^5 x_4^2 x_3 + 384 \alpha_1^3 \alpha_2^5 x_1 x_2^2 \alpha_3 - 2364 \alpha_1^3 x_1^2 x_2 \alpha_2^4 \alpha_3 \\
& + 1050 \alpha_1^3 \alpha_2 x_1 x_3^2 \alpha_3^5 + 2950 \alpha_1^3 x_3^2 x_2 \alpha_2^6 + 4425 \alpha_1^2 \alpha_3^7 \alpha_2 x_1 \\
& - 144 \alpha_1^3 \alpha_3 \alpha_2^4 x_2 x_4^2 - 500 \alpha_1^3 \alpha_3^2 \alpha_2^3 x_1 x_3^2 + 332 \alpha_1^3 \alpha_3^2 \alpha_2^3 x_1 x_4^2 \\
& - 670 \alpha_1^3 \alpha_2 x_1 x_3^2 \alpha_3^4 + 208 \alpha_1^3 x_4 x_3 x_1 \alpha_2^4 \alpha_3 + 128 \alpha_1^3 x_2 x_3^2 \alpha_2^4 \alpha_3 \\
& + 375 \alpha_1^3 \alpha_2^6 x_2 x_4^2 - 224 \alpha_1^3 \alpha_3^2 \alpha_2^3 x_4 x_3 x_2 + 500 \alpha_1^3 \alpha_3^3 x_4 x_3 x_1 \alpha_2^2 \\
& + 300 \alpha_1^3 \alpha_2 x_1 x_2^2 \alpha_3^6 - 2775 \alpha_1^3 \alpha_2 x_1^7 \alpha_3 + 625 \alpha_1^3 \alpha_2 x_2 x_4^2 \alpha_3^4 - 105 \alpha_1^2 \alpha_2^6 x_4^3 \\
& - 256 \alpha_1^3 \alpha_3^2 \alpha_2^4 x_2^3 + 5850 \alpha_1^3 \alpha_2 x_1 x_2^2 + 2010 \alpha_1^3 x_1^2 x_4 \alpha_2^6 + 24 \alpha_1^3 \alpha_2^5 x_1 x_4^2 \\
& - 6475 \alpha_1^3 \alpha_3 \alpha_2^6 x_2^3 - 225 \alpha_1^3 \alpha_3 \alpha_2^4 x_4^3 - 180 \alpha_1^3 \alpha_3 \alpha_2^5 x_3 x_2^2 \\
& - 3300 \alpha_1^3 x_1^2 x_2^2 \alpha_3^5 + 162 \alpha_1^3 \alpha_3 \alpha_2^5 x_1^3 - 2700 \alpha_1^3 \alpha_2^3 x_1^3 \alpha_3^4 \\
& - 150 \alpha_1^3 x_1^2 x_2 \alpha_3^7 - 100 \alpha_1^3 x_4 x_3 x_1 \alpha_2^6 + 1200 \alpha_1^3 x_2 x_3^2 \alpha_3^6 - 180 \alpha_1^3 \alpha_2^2 x_4^3 \alpha_3^3 \\
& - 72 \alpha_1^3 \alpha_2^8 x_2^3 + 694 \alpha_1^3 x_3^2 x_2^2 \alpha_2^3 \alpha_3 - 360 \alpha_1^3 \alpha_2^5 x_3^3 - 15600 \alpha_1^4 \alpha_2^5 x_1 x_2^2 \alpha_3 \\
& - 2100 \alpha_1^3 \alpha_2 x_4 x_3 x_2 \alpha_3^5 - 60 \alpha_1^4 \alpha_2^4 x_2^2 x_4 \alpha_3 + 12825 \alpha_1^4 x_1^2 x_2^2 \alpha_2^4 \alpha_3^2 \\
& - 720 \alpha_1^3 x_1 x_2 x_3 \alpha_2^6 + 1746 \alpha_1^3 \alpha_2^3 x_1 x_2^2 \alpha_3^3 + 2575 \alpha_1^2 \alpha_2^8 x_2^3 \\
& - 540 \alpha_1^4 \alpha_2^3 x_1^3 \alpha_3^2 - 550 \alpha_1^4 \alpha_2^5 x_1 x_4^2 + 360 \alpha_1^4 \alpha_2^3 x_3^3 \alpha_3 + 2250 \alpha_1^4 x_1^2 x_2^2 \alpha_2^6 \\
& - 360 \alpha_1^4 \alpha_2^5 x_1^2 x_3 - 600 \alpha_1^4 \alpha_2^5 x_1 x_3^2 + 240 \alpha_1^4 \alpha_2^4 x_4 x_3^2 - 9300 \alpha_1^3 \alpha_3^2 \alpha_2^5 x_1^3 \\
& - 425 \alpha_1^3 \alpha_2^2 x_2^3 \alpha_3^5 - 150 \alpha_1^3 \alpha_2 x_1^3 \alpha_3^6 + 360 \alpha_1^4 \alpha_2^3 x_3^2 \alpha_3^2 \\
& + 1300 \alpha_1^4 x_4 x_3 x_1 \alpha_2^4 \alpha_3 + 1000 \alpha_1^4 \alpha_2^5 x_4 x_3 x_2 + 120 \alpha_1^4 \alpha_2^3 x_4^2 x_3 \alpha_3 \\
& + 1650 \alpha_1^4 \alpha_2^2 x_4 x_3^2 \alpha_3^2 - 8350 \alpha_1^4 x_2 x_3^2 \alpha_2^4 \alpha_3 - 336 \alpha_1^4 \alpha_3^2 \alpha_2^3 x_1 x_2^2 \\
& - 1000 \alpha_1^4 \alpha_3 \alpha_2^4 x_2 x_4^2 + 8 \alpha_1^4 \alpha_2^5 x_1^3 - 6075 \alpha_1^4 \alpha_3 \alpha_2^3 x_1 x_3^2 \\
& - 525 \alpha_1^4 \alpha_3^2 \alpha_2^3 x_1 x_4^2 + 720 \alpha_1^4 x_1 x_2 x_3 \alpha_2^4 \alpha_3 + 480 \alpha_1^4 \alpha_2^5 x_1 x_4 x_2 \\
& - 3660 \alpha_1^4 x_1^2 x_4 \alpha_2^4 \alpha_3 + 500 \alpha_1^4 \alpha_2^6 x_2^3 + 32 \alpha_1^4 \alpha_3 \alpha_2^3 x_1 x_3^2 \\
& - 80 \alpha_1^4 \alpha_3^2 x_4 x_3 x_1 \alpha_2^2 - 72 \alpha_1^4 \alpha_3 \alpha_2^3 x_1 x_4^2 - 13500 \alpha_1^5 x_1^2 x_2 \alpha_3^3 \alpha_2^2 \\
& - 112 \alpha_1^4 \alpha_2^2 x_2 x_3^2 \alpha_3^2 + 290 \alpha_1^4 \alpha_3^3 \alpha_2 x_1 x_3^2 + 360 \alpha_1^5 \alpha_2^3 x_1^2 x_3 \alpha_3 \\
& + 1650 \alpha_1^5 \alpha_2^2 x_1^2 x_4 \alpha_3^2 - 7050 \alpha_1^5 x_1^2 x_2 \alpha_2^4 \alpha_3 + 13650 \alpha_1^5 \alpha_3^2 \alpha_2^3 x_1 x_2^2 \\
& + 625 \alpha_1^5 \alpha_3^2 \alpha_2^2 x_4^2 x_2 - 2200 \alpha_1^5 \alpha_2^3 x_2 x_4 x_3 \alpha_3 + 1200 \alpha_1^5 \alpha_2^5 x_1 x_2^2 \\
& + 100 \alpha_1^5 \alpha_2^4 x_2 x_4^2 - 6675 \alpha_1^5 \alpha_2^3 x_1^3 \alpha_3^2 + 1050 \alpha_1^4 \alpha_2^3 x_1^5 \alpha_3 \\
& + 7500 \alpha_1^4 \alpha_3 \alpha_2^5 x_1^3 + 1200 \alpha_1^4 x_1^2 x_2 \alpha_3^6 + 7725 \alpha_1^4 \alpha_3^3 \alpha_2^3 x_1^3 \\
& + 5225 \alpha_1^4 \alpha_3^2 \alpha_2^4 x_2^3 + 270 \alpha_1^4 \alpha_3^2 \alpha_2^2 x_4^3 - 40 \alpha_1^5 \alpha_3^2 \alpha_2 x_1 x_3^2
\end{aligned}$$

$$\begin{aligned}
& + 7950 \alpha_1^5 \alpha_2^2 x_2 x_3^2 \alpha_3^2 - 192 \alpha_1^5 x_1^2 x_2 \alpha_2^2 \alpha_3^2 + 1950 \alpha_1^5 \alpha_3^3 \alpha_2 x_1 x_3^2 \\
& + 550 \alpha_1^5 \alpha_3 \alpha_2^3 x_1 x_4^2 + 32 \alpha_1^5 \alpha_3 \alpha_2^3 x_1^3 - 3300 \alpha_1^5 x_1^2 x_2 \alpha_3^5 + 600 \alpha_1^5 \alpha_2^4 x_2 x_3^2 \\
& + 290 \alpha_1^5 \alpha_3^3 \alpha_2 x_1^3 + 240 \alpha_1^5 \alpha_2^4 x_1 x_4 - 1325 \alpha_1^5 \alpha_3^3 \alpha_2^2 x_2^3 - 600 \alpha_1^5 \alpha_2^5 x_1^3 \\
& + 1200 \alpha_1^5 \alpha_3 \alpha_2^3 x_1 x_3^2 - 120 \alpha_1^5 \alpha_3 \alpha_2^2 x_4^3 - 1000 \alpha_1^5 \alpha_3 \alpha_2^4 x_2^3 \\
& - 120 \alpha_1^5 \alpha_3^2 \alpha_2^2 x_4 x_2^2 - 240 \alpha_1^6 \alpha_3 x_1^2 x_4 \alpha_2^2 - 100 \alpha_1^6 \alpha_3 \alpha_2^2 x_4^2 x_2 \\
& - 1200 \alpha_1^6 \alpha_3 x_3^2 x_2 \alpha_2^2 - 1200 \alpha_1^5 \alpha_3^2 x_4 x_3 x_1 \alpha_2^2 - 480 \alpha_1^5 \alpha_3 \alpha_2^3 x_1 x_4 x_2 \\
& - 240 \alpha_1^5 \alpha_3 \alpha_2^2 x_4 x_3^2 + 500 \alpha_1^6 \alpha_3^2 \alpha_2^2 x_2^3 + 1200 \alpha_1^6 \alpha_3 \alpha_2^3 x_1^3 \\
& + 600 \alpha_1^6 x_1^2 x_2 \alpha_2^4 - 2250 \alpha_1^5 \alpha_2 x_1^3 \alpha_3^4 - 40 \alpha_1^6 \alpha_3^2 \alpha_2 x_1^3 \\
& + 1200 \alpha_1^6 \alpha_3^2 \alpha_2 x_4 x_3 x_2 + 7350 \alpha_1^6 x_1^2 x_2 \alpha_2^2 \alpha_3^2 - 600 \alpha_1^6 \alpha_3^2 \alpha_2 x_1 x_3^2 \\
& - 2400 \alpha_1^6 \alpha_3 \alpha_2^3 x_1 x_2^2 - 1200 \alpha_1^7 x_1^2 x_2 \alpha_2^2 \alpha_3 - 3900 \alpha_1^6 \alpha_3^3 \alpha_2 x_1 x_2^2 \\
& + 600 x_1^2 x_2 \alpha_3^2 \alpha_1^8 - 2550 \alpha_1^7 x_1^2 x_2 \alpha_3^3 + 1200 \alpha_1^7 \alpha_2 x_1 x_2^2 \alpha_3^2 + 600 \alpha_1^7 x_2 x_3^2 \alpha_3^2 \\
& + 4200 \alpha_1^6 x_1^2 x_2 \alpha_3^4 - 2550 \alpha_1^6 \alpha_3^3 x_2 x_3^2 + 1950 \alpha_1^6 \alpha_3^3 \alpha_2 x_1^3 + 60 \alpha_1^4 \alpha_2^4 x_4^3 \\
& + 192 \alpha_1^4 x_1^2 x_2 \alpha_2^4 \alpha_3 + 1194 \alpha_1^4 x_1^2 x_2 \alpha_3^3 \alpha_2^2 + 75 \alpha_1 \alpha_2^6 x_4^2 x_2 \alpha_3^2 \\
& + 200 \alpha_1 \alpha_2^4 x_4^2 x_2 \alpha_3^4 + 374 \alpha_1 \alpha_2^4 x_4^2 x_2 \alpha_3^3 - 290 \alpha_1 \alpha_2 x_1 x_3^2 \alpha_3^6 \\
& + 430 \alpha_1 \alpha_2^5 x_1 x_4^2 \alpha_3^2 - 600 \alpha_1 \alpha_2^9 x_1^3 - 162 \alpha_1 \alpha_2^3 x_1 x_4^2 \alpha_3^4 - 1475 \alpha_1 \alpha_2^7 x_1 x_4^2 \alpha_3^2 \\
& + 3588 \alpha_1 \alpha_2^5 x_1 x_2^2 \alpha_3^3 + 264 \alpha_1 \alpha_2^3 x_1 x_2^2 \alpha_3^5 + 600 \alpha_1 \alpha_2^5 x_1 x_2^2 \alpha_3^4 \\
& - 394 \alpha_1 \alpha_2^5 x_1 x_3^2 \alpha_3^2 - 1250 \alpha_1 \alpha_2^3 x_1 x_3^2 \alpha_3^4 + 300 \alpha_1 \alpha_2^3 x_1 x_3^2 \alpha_3^5 \\
& + 200 \alpha_1 \alpha_2^5 x_1 x_4^2 \alpha_3^3 + 646 \alpha_1 x_2 x_3^2 \alpha_3^5 \alpha_2^2 + 300 \alpha_1 x_2 x_3^2 \alpha_3^6 \alpha_2^2 \\
& + 1004 \alpha_1 \alpha_3 x_4 x_3 x_1 \alpha_2^6 + 1950 \alpha_1 x_2 x_3^2 \alpha_3^4 \alpha_2^4 + 2782 \alpha_1 x_2 x_3^2 \alpha_3^2 \alpha_2^3 \alpha_4 \\
& + 1000 \alpha_1 \alpha_2^5 x_1 x_3^2 \alpha_3^3 + 1980 \alpha_1 \alpha_3^4 \alpha_2^3 x_4^2 x_3 + 180 \alpha_1 \alpha_2^3 x_1^2 x_3 \alpha_3^5 \\
& + 1578 \alpha_1 \alpha_2^7 x_1 x_2^2 \alpha_3 - 450 \alpha_1 x_1^2 x_2 \alpha_2^4 \alpha_3^5 - 100 \alpha_1 \alpha_2^4 x_2^3 \alpha_3^5 \\
& - 900 \alpha_1 \alpha_2^7 x_1^3 \alpha_3^2 + 104 \alpha_1 \alpha_2^7 x_1 x_3^2 + 24 \alpha_1 \alpha_2^7 x_1 x_4^2 + 2400 \alpha_1 x_1^2 x_4 \alpha_3^4 \alpha_2^4 \\
& - 168 \alpha_1 x_1^2 x_2 \alpha_2^2 \alpha_3^6 - 1500 \alpha_1 x_1^2 x_2 \alpha_2^6 \alpha_3^3 - 240 \alpha_1 \alpha_2^3 x_1 x_4 x_2 \alpha_3^5 \\
& - 2436 \alpha_1 x_1^2 x_2 \alpha_2^4 \alpha_3^4 + 120 \alpha_1 x_1^2 x_4 \alpha_3^6 \alpha_2^2 - 1110 \alpha_1 x_4 x_3^2 \alpha_3^5 \alpha_2^2 \\
& + 180 \alpha_1 \alpha_2^4 x_2^2 x_4 \alpha_3^4 + 216 \alpha_1 x_1^2 x_2 \alpha_2^8 - 1525 \alpha_1 \alpha_2^6 x_2^3 \alpha_3^3 - 450 \alpha_1 \alpha_2^5 x_1^3 \alpha_3^4 \\
& - 184 \alpha_1 \alpha_2^4 x_2^3 \alpha_3^4 - 1725 \alpha_1 \alpha_2^6 x_4^3 \alpha_3 + 612 \alpha_1 \alpha_2^3 x_1^3 \alpha_3^5 + 598 \alpha_1 x_3^2 x_2 \alpha_2^6 \alpha_3^6 \\
& - 3172 \alpha_1 \alpha_2^5 x_4 x_3 x_2 \alpha_3^2 - 144 \alpha_1 \alpha_2^7 x_4 x_3 x_2 - 810 \alpha_1 \alpha_2^4 x_4^3 \alpha_3^3 \\
& - 742 \alpha_1 \alpha_2^6 x_2 x_4^2 \alpha_3 - 600 \alpha_1 x_4 x_3 x_1 \alpha_3^4 \alpha_2^4 + 954 \alpha_1 x_1^2 x_2 \alpha_2^6 \alpha_3^6
\end{aligned}$$



$$\begin{aligned}
&+ 58 \alpha_1^2 \alpha_3 \alpha_2^5 x_1 x_3^2 - 460 \alpha_1^2 \alpha_3 \alpha_2^5 x_1 x_4^2 - 150 \alpha_1^2 \alpha_2 x_1 x_3^2 \alpha_3^6 \\
&+ 670 \alpha_1^2 \alpha_2 x_1 x_3^2 \alpha_3^5 - 1674 \alpha_1^2 \alpha_2^3 x_1 x_2^2 \alpha_3^4 - 100 \alpha_1^2 \alpha_2^3 x_1 x_4^2 \alpha_3^4 \\
&+ 900 \alpha_1^2 \alpha_2^5 x_1 x_4^2 \alpha_3^2 - 138 \alpha_1^2 \alpha_2^3 x_1 x_4^2 \alpha_3^3 - 750 \alpha_1^2 \alpha_2^4 x_2^2 \alpha_3^3 \\
&+ 1470 \alpha_1^2 x_4 x_3^2 \alpha_2^6 + 1356 \alpha_1^2 \alpha_2^3 x_1 x_3^2 \alpha_3^3 - 16 \alpha_1^2 x_3^2 x_2 \alpha_2^6 \\
&+ 544 \alpha_1^2 \alpha_3 \alpha_2^5 x_4 x_3 x_2 - 1456 \alpha_1^2 \alpha_3^2 x_4 x_3 x_1 \alpha_2^4 - 1140 \alpha_1^2 x_2 x_3^2 \alpha_3^4 \alpha_2^2 \\
&- 2550 \alpha_1^2 x_2 x_3^2 \alpha_3^5 \alpha_2^2 + 2400 \alpha_1^2 \alpha_3^3 \alpha_2^5 x_1^3 - 180 \alpha_1^2 \alpha_2^7 x_2^2 x_3 \\
&+ 56 \alpha_1^2 \alpha_2^6 x_2 x_4^2 - 48 \alpha_1^2 \alpha_2^7 x_1 x_2^2 + 328 \alpha_1^2 \alpha_3 \alpha_2^6 x_2^3 - 2725 \alpha_1^2 \alpha_2^7 x_1 x_3^2 \\
&- 1625 \alpha_1^2 \alpha_2^7 x_1 x_4^2 - 100 \alpha_1^2 \alpha_2^2 x_2 x_4^2 \alpha_3^5 - 1800 \alpha_1^2 \alpha_2^3 x_1 x_3^2 \alpha_3^4 \\
&+ 398 \alpha_1^2 \alpha_2^4 x_2 x_4^2 \alpha_3^2 - 750 \alpha_1^2 \alpha_2^3 x_1 x_2^2 \alpha_3^5 - 3200 \alpha_1^2 \alpha_2^5 x_4 x_3 x_2 \alpha_3^3 \\
&- 1116 \alpha_1^2 \alpha_2^3 x_4 x_3 x_2 \alpha_3^4 - 600 \alpha_1^2 \alpha_2^3 x_4 x_3 x_2 \alpha_3^5 + 1532 \alpha_1^2 x_4 x_3 x_1 \alpha_3^3 \alpha_2^4 \\
&- 3564 \alpha_1^2 \alpha_2^5 x_1 x_2^2 \alpha_3^2 + 3300 \alpha_1^2 x_1^2 x_2 \alpha_2^4 \alpha_3^4 + 450 \alpha_1^2 x_1^2 x_2 \alpha_2^2 \alpha_3^6 \\
&+ 30 \alpha_1^2 \alpha_2^2 x_2^2 x_4 \alpha_3^5 - 1110 \alpha_1^2 x_1^2 x_4 \alpha_3^5 \alpha_2^2 + 1146 \alpha_1^2 x_1^2 x_2 \alpha_2^2 \alpha_3^5 \\
&- 600 \alpha_1^2 \alpha_3^7 \alpha_2^2 x_1^3 - 1906 x_2^2 x_3^2 \alpha_2^6 \alpha_3^2 - 88 x_2^2 x_3^2 \alpha_3^6 \alpha_2^2 - 600 x_2^2 x_3^2 \alpha_3^2 \alpha_2^3 \alpha_3^6 \\
&- 180 \alpha_2^5 x_1^2 x_3 \alpha_3^4 - 910 x_2^2 x_3^2 \alpha_3^4 \alpha_2^4 - 120 x_1^2 x_4 \alpha_3^5 \alpha_2^4 + 40 \alpha_2^2 x_1 x_3^2 \alpha_3^7 \\
&- 150 \alpha_2^5 x_1 x_3^2 \alpha_3^4 - 1875 \alpha_2^8 x_2^3 \alpha_1 \alpha_3 + 4365 \alpha_2^7 x_4^2 x_3 \alpha_1 - 3735 \alpha_2^7 x_4^2 x_3 \alpha_3 \\
&- 2835 \alpha_2^7 x_1 x_3 \alpha_1^2 - 1845 \alpha_2^7 x_1 x_3 \alpha_3^2 + 800 \alpha_1 \alpha_2^8 x_2 x_4^2 - 2115 \alpha_2^3 x_3 \alpha_1^3 \alpha_3^2 \\
&+ 4950 \alpha_2^5 x_3^3 \alpha_1^2 \alpha_3^2 - 450 \alpha_2^7 x_3 x_2^2 \alpha_3^2 - 250 \alpha_2^7 x_1 x_3^2 \alpha_3^2 + 3450 \alpha_2^6 x_2^3 \alpha_1^2 \alpha_3^2 \\
&+ 556 \alpha_2^5 x_1 x_3^2 \alpha_3^3 - 396 \alpha_2^7 x_1 x_3^2 \alpha_3^3 + 2985 x_1^2 x_4 \alpha_2^8 \alpha_1 + 362 \alpha_2^3 x_1 x_3^2 \alpha_3^5 \\
&- 2565 x_1^2 x_4 \alpha_2^8 \alpha_3 + 234 \alpha_2^5 x_1 x_4^2 \alpha_3^3 - 100 \alpha_2^7 x_1 x_4^2 \alpha_3^2 + 40 \alpha_2^3 x_1 x_4^2 \alpha_3^5 \\
&- 5580 x_1 x_2 x_3 \alpha_2^6 \alpha_1 \alpha_3^2 - 4230 x_1 x_2 x_3 \alpha_1^3 \alpha_3^2 \alpha_2^4 + 80 \alpha_2^9 x_1^3 - 316 \alpha_2^7 x_1 x_4^2 \alpha_3 \\
&- 638 \alpha_2^6 x_4^2 x_2 \alpha_3^2 + 50 \alpha_2^8 x_4^2 x_2 \alpha_3 - 88 \alpha_2^4 x_4^2 x_2 \alpha_3^4 - 100 \alpha_2^6 x_4^2 x_2 \alpha_3^3 \\
&+ 1935 \alpha_2^8 x_2^2 x_4 \alpha_1 + 500 \alpha_1 x_4 x_3 x_1 \alpha_3^5 \alpha_2^2 - 2328 \alpha_1 \alpha_2^6 x_2^3 \alpha_3^2 + 40 \alpha_1 \alpha_2^3 x_1^3 \alpha_3^7 \\
&+ 2100 \alpha_2^9 x_1 x_4 x_2 - 840 \alpha_1^2 x_4 x_3 x_1 \alpha_3^4 \alpha_2^2 + 300 \alpha_1^2 x_4 x_3 x_1 \alpha_3^5 \alpha_2^2 \\
&- 1460 \alpha_1^2 x_3^2 x_2 \alpha_2^4 \alpha_3^2 + 106 \alpha_2^7 x_1^3 \alpha_1 \alpha_3 - 1122 \alpha_2^5 x_1^3 \alpha_1^2 \alpha_3^2 \\
&+ 9540 x_1 x_2 x_3 \alpha_2^6 \alpha_1^2 \alpha_3 - 5310 x_1 x_2 x_3 \alpha_2^8 \alpha_1 + 2790 x_1 x_2 x_3 \alpha_2^8 \alpha_3 \\
&+ 3030 x_1^2 x_4 \alpha_2^2 \alpha_1^3 \alpha_3^4 - 8505 x_1^2 x_4 \alpha_2^4 \alpha_1^2 \alpha_3^3 - 450 \alpha_2^3 x_3 x_2^2 \alpha_1^3 \alpha_3^3 \\
&- 3300 x_2^2 x_3^2 \alpha_1^4 \alpha_3^5 - 1170 \alpha_2^5 x_3 x_2^2 \alpha_1^2 \alpha_3^2 + 4770 \alpha_2^7 x_3 x_2^2 \alpha_1 \alpha_3 \\
&+ 2790 x_1 x_2 x_3 \alpha_2^4 \alpha_1^2 \alpha_3^3 - 3150 \alpha_2^9 x_3 x_2^2 + 1606 \alpha_2^3 x_1^3 \alpha_1^3 \alpha_3^3 + 1500 x_1^2 x_2 \alpha_2^{10}
\end{aligned}$$

$$\begin{aligned}
& -3150 \alpha_2^9 x_1^2 x_3 + 500 \alpha_2^9 x_1 x_3^2 - 5250 \alpha_2^8 x_4 x_3^2 - 2655 \alpha_2^7 x_3^3 \alpha_1 \\
& - 670 \alpha_2 x_1^3 \alpha_1^4 \alpha_3^4 + 4500 \alpha_2 x_4 x_3 x_2 \alpha_1^4 \alpha_3^4 - 13950 \alpha_2^3 x_4 x_3 x_2 \alpha_1^3 \alpha_3^3 \\
& - 2250 \alpha_2 x_1 x_3^2 \alpha_1^4 \alpha_3^4 + 6375 \alpha_2^3 x_1 x_3^2 \alpha_1^3 \alpha_3^3 - 4400 \alpha_2^5 x_1 x_3^2 \alpha_1^2 \alpha_3^2 \\
& + 8820 \alpha_2^7 x_1^2 x_3 \alpha_1 \alpha_3 - 8730 \alpha_2^5 x_1^2 x_3 \alpha_1^2 \alpha_3^2 - 2115 \alpha_2^3 x_1^2 x_3 \alpha_1^4 \alpha_3^2 \\
& + 5150 \alpha_2^7 x_4 x_3 x_2 \alpha_1^2 - 45 \alpha_2^6 x_4 x_3^2 \alpha_3^2 + 12450 \alpha_2^3 x_4 x_3 x_2 \alpha_1^4 \alpha_3^2 \\
& - 13700 \alpha_2^5 x_4 x_3 x_2 \alpha_1^3 \alpha_3 + 90 \alpha_2^3 x_3 x_2 \alpha_1^2 \alpha_3^4 + 360 \alpha_2^5 x_3 x_2 \alpha_1 \alpha_3^3 \\
& - 3900 \alpha_2 x_4 x_3 x_2 \alpha_1^5 \alpha_3^3 + 3060 \alpha_2^3 x_1 x_3 \alpha_1^3 \alpha_3^3 + 4950 \alpha_2^5 x_1 x_3 \alpha_1^2 \alpha_3^3 \\
& - 1485 \alpha_2^3 x_1^2 x_3 \alpha_1^2 \alpha_3^4 + 3330 \alpha_2^5 x_1^2 x_3 \alpha_1 \alpha_3^3 - 9800 x_4 x_3 x_1 \alpha_2^4 \alpha_1^3 \alpha_3^2 \\
& + 9300 x_4 x_3 x_1 \alpha_2^6 \alpha_1^2 \alpha_3^2 - 2200 x_4 x_3 x_1 \alpha_2^8 \alpha_1 + 2700 x_4 x_3 x_1 \alpha_2^2 \alpha_1^4 \alpha_3^3 \\
& + 360 x_1 x_2 x_3 \alpha_2^6 \alpha_3^3 - 1050 \alpha_1^4 \alpha_2^2 x_2 x_4 \alpha_3^3 + 3700 \alpha_1^3 \alpha_2^4 x_2 x_4 \alpha_3^2 \\
& - 3450 \alpha_1^2 \alpha_2^6 x_2 x_4 \alpha_3^2 - 9360 x_1^2 x_4 \alpha_2^6 \alpha_1^2 \alpha_3^2 - 360 x_1 x_2 x_3 \alpha_2^4 \alpha_3^4 \alpha_1 \\
& + 10860 \alpha_2^5 x_1 x_4 x_2 \alpha_1^2 \alpha_3^2 + 1035 \alpha_2^4 x_2 x_4 \alpha_1^3 \alpha_3^2 + 8040 x_1^2 x_4 \alpha_2^6 \alpha_1 \alpha_3^2 \\
& - 8580 \alpha_2^7 x_1 x_4 x_2 \alpha_1 \alpha_3 - 3240 \alpha_2^6 x_2 x_4 \alpha_1^2 \alpha_3^2 - 3450 x_1^2 x_4 \alpha_1^4 \alpha_3^3 \alpha_2^2 \\
& + 9825 x_1^2 x_4 \alpha_1^3 \alpha_3^2 \alpha_2^4 + 500 \alpha_2^{10} x_2^3 - 1800 x_4 x_3 x_1 \alpha_2^2 \alpha_1^3 \alpha_3^4 \\
& + 2800 x_4 x_3 x_1 \alpha_2^4 \alpha_1^2 \alpha_3^3 - 1300 x_4 x_3 x_1 \alpha_2^6 \alpha_1 \alpha_3^2 + 13800 \alpha_2^5 x_4 x_3 x_2 \alpha_1^2 \alpha_3^2 \\
& - 322 \alpha_2^7 x_1^3 \alpha_3^2 + 300 x_4 x_3 x_1 \alpha_2^8 \alpha_3 + 1000 \alpha_2^9 x_4 x_3 x_2 - 5350 \alpha_2^7 x_4 x_3 x_2 \alpha_1 \alpha_3 \\
& + 2070 \alpha_2^3 x_4 x_3 \alpha_1^3 \alpha_3^2 - 5775 \alpha_2^5 x_4 x_3 \alpha_1^2 \alpha_3^2 - 3930 \alpha_2^3 x_4 x_3 \alpha_3^3 \alpha_1^2 \\
& - 225 \alpha_2^7 x_1 x_3^2 \alpha_1 \alpha_3 + 7845 \alpha_2^5 x_4 x_3 \alpha_3^2 \alpha_1 + 3030 \alpha_2^2 x_4 x_3^2 \alpha_3^4 \alpha_1^2 \\
& - 3885 \alpha_2^4 x_4 x_3 \alpha_3^2 \alpha_1 + 17450 x_2 x_3 \alpha_2^2 \alpha_1^4 \alpha_3^2 + 1300 x_2 x_3 \alpha_2^2 \alpha_1^8 \\
& - 180 \alpha_2^2 x_2^2 x_4 \alpha_3^4 \alpha_1^3 - 3275 \alpha_2^4 x_2^3 \alpha_1^3 \alpha_3^3 + 750 \alpha_2^9 x_1 x_2 \alpha_3 \\
& + 3060 \alpha_2^3 x_1 x_4 x_2 \alpha_1^4 \alpha_3^2 - 6720 \alpha_2^5 x_1 x_4 x_2 \alpha_1^3 \alpha_3 + 270 \alpha_2^2 x_2^2 x_4 \alpha_1^4 \alpha_3^3 \\
& + 2040 \alpha_2^3 x_1 x_4 x_2 \alpha_1^2 \alpha_3^4 - 4200 \alpha_2^5 x_1 x_4 x_2 \alpha_1 \alpha_3^3 + 4620 x_1^2 x_2 \alpha_2^4 \alpha_3^3 \alpha_1^2 \\
& - 3276 x_1^2 x_2 \alpha_2^6 \alpha_3^2 \alpha_1 + 10200 x_1^2 x_2 \alpha_2^2 \alpha_1^4 \alpha_3^4 - 1980 x_1^2 x_2 \alpha_2^2 \alpha_3^4 \alpha_1^3 \\
& - 975 \alpha_2^4 x_2^2 x_4 \alpha_3^3 \alpha_1^2 + 2670 \alpha_2^6 x_2^2 x_4 \alpha_3^2 \alpha_1 - 4380 \alpha_2^3 x_1 x_4 x_2 \alpha_1^3 \alpha_3^3 \\
& + 4545 \alpha_2^7 x_3^3 \alpha_3 - 13275 x_1^2 x_2 \alpha_2^4 \alpha_1^3 \alpha_3^3 + 10650 x_1^2 x_2 \alpha_2^6 \alpha_1^2 \alpha_3^2 \\
& - 5775 x_1^2 x_2 \alpha_2^8 \alpha_1 \alpha_3 + 1500 \alpha_2^9 x_1 x_2^2 \alpha_1 - 1515 \alpha_2^8 x_2^2 x_4 \alpha_3 \\
& - 975 \alpha_2^7 x_1 x_2^2 \alpha_1 \alpha_3^2 - 2400 \alpha_2^5 x_1 x_2^2 \alpha_1^2 \alpha_3^3 - 9225 \alpha_2^7 x_1 x_2^2 \alpha_1^2 \alpha_3 \\
& - 2100 \alpha_2 x_1 x_2^2 \alpha_1^4 \alpha_3^5 - 7065 \alpha_2^5 x_3^3 \alpha_3^2 \alpha_1 + 3060 \alpha_2^3 x_3^3 \alpha_3^3 \alpha_1^2
\end{aligned}$$

$$\begin{aligned}
& -15225 \alpha_2^3 x_1 x_2^2 \alpha_1^4 \alpha_3^3 + 18450 \alpha_2^5 x_1 x_2^2 \alpha_1^3 \alpha_3^2 + 4725 \alpha_2^3 x_1 x_2^2 \alpha_1^3 \alpha_3^4 \\
& -1670 \alpha_2^3 x_1^3 \alpha_1^2 \alpha_3^4 + 3250 x_2 x_3^2 \alpha_2^6 \alpha_1 \alpha_3^2 - 3450 \alpha_2^2 x_4 x_3^2 \alpha_1^3 \alpha_3^3 \\
& + 5235 \alpha_2^4 x_4 x_3^2 \alpha_1^2 \alpha_3^2 + 2325 \alpha_2^6 x_4 x_3^2 \alpha_1 \alpha_3 + 9750 x_2 x_3^2 \alpha_1^3 \alpha_3^4 \alpha_2^2 \\
& - 9250 x_2 x_3^2 \alpha_1^2 \alpha_3^3 \alpha_2^4 + 4200 x_2 x_3^2 \alpha_1^5 \alpha_3^4 - 450 x_2 x_3^2 \alpha_2^8 \alpha_3 + 670 \alpha_2 x_1^3 \alpha_1^3 \alpha_3^5 \\
& - 14250 x_2 x_3^2 \alpha_1^4 \alpha_3^3 \alpha_2^2 - 8700 x_2 x_3^2 \alpha_2^6 \alpha_1^2 \alpha_3 + 4500 \alpha_2 x_1 x_2^2 \alpha_1^5 \alpha_3^4 \\
& + 1322 \alpha_2^5 x_1^3 \alpha_1 \alpha_3^3 + 636 x_1^2 x_2 \alpha_2^8 \alpha_3 + 2025 \alpha_2^5 x_3^3 \alpha_3^3 - 1485 \alpha_2^3 x_3^3 \alpha_3^4 \alpha_1 \\
& + 2160 \alpha_2^7 x_1 x_4 x_2 \alpha_3^2 - 150 x_2 x_3^2 \alpha_3^5 \alpha_2^4 + 3660 \alpha_2^7 x_1 x_4 x_2 \alpha_1^2 \\
& + 1200 \alpha_2^2 x_2^3 \alpha_1^4 \alpha_3^4 - 1914 \alpha_2^7 x_1 x_2^2 \alpha_3^2 - 150 \alpha_2^7 x_1 x_2^2 \alpha_3^3 - 264 \alpha_2^5 x_1 x_2^2 \alpha_3^4 \\
& \left[ \left( (\alpha_1^2 \alpha_3^2 - 2 \alpha_2^2 \alpha_1 \alpha_3 + \alpha_2^4) (4 \alpha_1^2 - 17 \alpha_1 \alpha_3 + 4 \alpha_3^2 + 25 \alpha_2^2) (\alpha_1^4 - 4 \alpha_1^3 \alpha_3 \right. \right. \\
& \left. \left. + 8 \alpha_1^2 \alpha_2^2 + 6 \alpha_1^2 \alpha_3^2 - 4 \alpha_1 \alpha_3^3 - 16 \alpha_2^2 \alpha_1 \alpha_3 + 16 \alpha_2^4 + 8 \alpha_3^2 \alpha_2^2 + \alpha_3^4) \right) \right]
\end{aligned}$$

#### Output of intermediate results

```

> for j from 1 to targetspace-1 do
  print("Poincare-Dulac normal form up to degree", j, ":");
  for i from 1 to targetspace do
    print(dgl[j,i]);
  od;
od;

```

"Poincare-Dulac normal form up to degree", 1, ":"

$$[x_3, x_4, -\alpha_1 x_1 - \alpha_2 x_2, -\alpha_2 x_1 - \alpha_3 x_2]$$

$$[0, 0, \beta x_1^2, 5 \beta x_2 x_3]$$

$$[0, 0, 0, 0]$$

"Poincare-Dulac normal form up to degree", 2, ":"

$$[x_3, x_4, -\alpha_1 x_1 - \alpha_2 x_2, -\alpha_2 x_1 - \alpha_3 x_2]$$

$$[0, 0, 0, 0]$$

$$\begin{aligned}
& \left[ \frac{1}{6} \beta^2 (-260 \alpha_1 \alpha_2 \alpha_3^2 + 60 \alpha_1^2 \alpha_2 \alpha_3 + 340 \alpha_2^3 \alpha_3 + 80 \alpha_2 \alpha_3^3 - 60 \alpha_1 \alpha_2^3) x_2 x_3^2 \right. \\
& \left. (4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 \right. \\
& \left. - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) + \frac{1}{6} \beta^2 \right. \\
& \left. (-80 \alpha_3^2 \alpha_2^2 + 120 \alpha_2^2 \alpha_1 \alpha_3 - 200 \alpha_2^4) x_2 x_4 x_3 \right] \left( 4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 \right. \\
& \left. - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 \right. \\
& \left. + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) + \frac{1}{6} \beta^2 (250 \alpha_2^2 \alpha_1^2 \alpha_3 - 250 \alpha_2^4 \alpha_1) x_3 x_2^2 \right] \left( 4 \alpha_1^4 \alpha_3^2 \right. \\
& \left. - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 - 8 \alpha_2^2 \alpha_1 \alpha_3^3 \right.
\end{aligned}$$

$$\begin{aligned}
& -67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) + \frac{1}{6} \beta^2 \\
& (150 \alpha_1^3 \alpha_2 \alpha_3 - 150 \alpha_1^2 \alpha_2^2 \alpha_3 + 250 \alpha_2^5 - 400 \alpha_1 \alpha_3 \alpha_2^3 + 150 \alpha_1^2 \alpha_2 \alpha_3^2) x_1 x_3 x_2 / ( \\
& 4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 \\
& - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) + \frac{1}{6} \beta^2 \\
& (-4 \alpha_2^2 \alpha_1 \alpha_3 - 16 \alpha_3^4 - 16 \alpha_1^2 \alpha_3^2 - 84 \alpha_3^2 \alpha_2^2 + 68 \alpha_1 \alpha_3^3 + 20 \alpha_2^4) x_1^2 x_3 / ( \\
& 4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 \\
& - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) + \frac{1}{6} \beta^2 \\
& (12 \alpha_1^2 \alpha_2 \alpha_3 - 52 \alpha_1 \alpha_2 \alpha_3^2 + 16 \alpha_2 \alpha_3^3 + 68 \alpha_2^3 \alpha_3 - 12 \alpha_1 \alpha_2^3) x_1^2 x_4 / (4 \alpha_1^4 \alpha_3^2 \\
& - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 - 8 \alpha_2^2 \alpha_1 \alpha_3^3 \\
& - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) + \frac{1}{6} \beta^2 (-75 \alpha_1^2 \alpha_2 \alpha_3^2 - 25 \alpha_2^5 + 100 \alpha_1 \alpha_3 \alpha_2^3) \\
& x_1^2 x_2 / (4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 \\
& + 4 \alpha_1^2 \alpha_3^4 - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) + \frac{1}{6} \beta^2 \\
& (30 \alpha_2^4 \alpha_1 - 30 \alpha_2^2 \alpha_1^2 \alpha_3 - 20 \alpha_2^4 \alpha_3 + 20 \alpha_2^2 \alpha_1 \alpha_3^2) x_1^3 / (4 \alpha_1^4 \alpha_3^2 \\
& - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 - 8 \alpha_2^2 \alpha_1 \alpha_3^3 \\
& - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6), -\frac{1}{6} \beta^2 (80 \alpha_3^2 \alpha_2^2 + 200 \alpha_2^4 - 120 \alpha_2^2 \alpha_1 \alpha_3) x_2 \\
& x_3^2 / (4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 \\
& - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) - \frac{1}{6} \beta^2 (-80 \alpha_1 \alpha_2^3 - 80 \alpha_2^3 \alpha_3) x_2 \\
& x_4 x_3 / (4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 \\
& + 4 \alpha_1^2 \alpha_3^4 - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) - \frac{1}{6} \beta^2 \\
& (-25 \alpha_1^2 \alpha_2 \alpha_3^2 + 125 \alpha_2^5 - 100 \alpha_1^2 \alpha_2^3 + 100 \alpha_1^3 \alpha_2 \alpha_3 - 100 \alpha_1 \alpha_3 \alpha_2^3) x_3 x_2^2 / ( \\
& 4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 \\
& - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) - \frac{1}{6} \beta^2 (-150 \alpha_1^2 \alpha_3^3 + 600 \alpha_1^3 \alpha_3^2 \\
& + 300 \alpha_2^2 \alpha_1 \alpha_3^2 - 150 \alpha_2^4 \alpha_3 + 850 \alpha_2^4 \alpha_1 - 1450 \alpha_2^2 \alpha_1^2 \alpha_3) x_1 x_3 x_2 / (4 \alpha_1^4 \alpha_3^2 \\
& - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 - 8 \alpha_2^2 \alpha_1 \alpha_3^3
\end{aligned}$$

$$\begin{aligned}
& -67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) - \frac{1}{6} \beta^2 \\
& (-68 \alpha_2^3 \alpha_3 - 12 \alpha_1^2 \alpha_2 \alpha_3 + 52 \alpha_1 \alpha_2 \alpha_3^2 + 12 \alpha_1 \alpha_2^3 - 16 \alpha_2 \alpha_3^3) x_1^2 x_3 / (4 \alpha_1^4 \alpha_3^2 \\
& - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 - 8 \alpha_2^2 \alpha_1 \alpha_3^3 \\
& - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) - \frac{1}{6} \beta^2 (40 \alpha_2^4 - 24 \alpha_2^2 \alpha_1 \alpha_3 + 16 \alpha_3^2 \alpha_2^2) x_1^2 x_4 \\
& / (4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 \\
& - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) - \frac{1}{6} \beta^2 \\
& (-60 \alpha_1^3 \alpha_3^2 + 15 \alpha_1^2 \alpha_3^3 - 40 \alpha_2^4 \alpha_1 - 15 \alpha_2^4 \alpha_3 + 100 \alpha_2^2 \alpha_1^2 \alpha_3) x_1^2 x_2 / ( \\
& 4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 \\
& - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6) - \frac{1}{6} \beta^2 \\
& (-125 \alpha_2^5 - 75 \alpha_1^2 \alpha_2 \alpha_3^2 + 200 \alpha_1 \alpha_3 \alpha_2^3) x_1^3 / (4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 \\
& - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 \\
& + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6), \frac{1}{6} \\
& (-150 \alpha_1^2 \alpha_2^3 - 225 \alpha_1^2 \alpha_2 \alpha_3^2 + 125 \alpha_2^5 + 150 \alpha_1^3 \alpha_2 \alpha_3 + 100 \alpha_1 \alpha_3 \alpha_2^3) \beta^2 x_3^2 x_2 \\
& / ((4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)) + \frac{1}{6} \\
& (-20 \alpha_2^4 + 4 \alpha_2^2 \alpha_1 \alpha_3 + 84 \alpha_3^2 \alpha_2^2 + 16 \alpha_1^2 \alpha_3^2 - 68 \alpha_1 \alpha_3^3 + 16 \alpha_3^4) \beta^2 x_1 x_3^2 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)) + \frac{1}{6} (-500 \alpha_2^4 \alpha_1 + 500 \alpha_2^2 \alpha_1^2 \alpha_3) \beta^2 x_4 x_3 x_2 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)) + \frac{1}{6} \\
& (-32 \alpha_2 \alpha_3^3 + 24 \alpha_1 \alpha_2^3 - 24 \alpha_1^2 \alpha_2 \alpha_3 - 136 \alpha_2^3 \alpha_3 + 104 \alpha_1 \alpha_2 \alpha_3^2) \beta^2 x_1 x_4 x_3 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)) + \frac{1}{6} (60 \alpha_2^4 \alpha_1 - 40 \alpha_2^4 \alpha_3 - 60 \alpha_2^2 \alpha_1^2 \alpha_3 + 40 \alpha_2^2 \alpha_1 \alpha_3^2) \beta^2 x_3 x_2^2 \\
& / ((4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4)
\end{aligned}$$

$$\begin{aligned}
& (-\alpha_2^2 + \alpha_1 \alpha_3)) + \frac{1}{6} (-40 \alpha_1 \alpha_2 \alpha_3^3 - 700 \alpha_1 \alpha_3 \alpha_2^3 + 40 \alpha_2^3 \alpha_3^2 - 60 \alpha_1^3 \alpha_2 \alpha_3 \\
& + 60 \alpha_1^2 \alpha_2^3 + 400 \alpha_1^2 \alpha_2 \alpha_3^2 + 300 \alpha_2^5) \beta^2 x_1 x_3 x_2 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)) + \frac{1}{6} (40 \alpha_2^4 - 24 \alpha_2^2 \alpha_1 \alpha_3 + 16 \alpha_3^2 \alpha_2^2) \beta^2 x_1 x_4^2 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)) + \frac{1}{6} (100 \alpha_2^4 \alpha_1 - 100 \alpha_2^2 \alpha_1^2 \alpha_3) \beta^2 x_1 x_4 x_2 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)) + \frac{1}{6} \\
& (-105 \alpha_1^2 \alpha_2 \alpha_3^2 - 30 \alpha_1^3 \alpha_2 \alpha_3 + 30 \alpha_1^2 \alpha_2^3 - 75 \alpha_2^5 + 180 \alpha_1 \alpha_3 \alpha_2^3) \beta^2 x_1^2 x_4 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)) + \frac{1}{6} (-20 \alpha_2^4 \alpha_3 + 20 \alpha_2^2 \alpha_1 \alpha_3^2) \beta^2 x_1 x_2^2 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)) + \frac{1}{6} (-30 \alpha_2^5 + 6 \alpha_1^2 \alpha_2 \alpha_3^2 - 24 \alpha_1 \alpha_2 \alpha_3^3 + 24 \alpha_2^3 \alpha_3^2 + 24 \alpha_1 \alpha_3 \alpha_2^3) \\
& \beta^2 x_1^2 x_2 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)) + \frac{1}{6} (136 \alpha_2^2 \alpha_1 \alpha_3^2 + 16 \alpha_1 \alpha_3^4 - 8 \alpha_2^2 \alpha_1^2 \alpha_3 - 68 \alpha_1^2 \alpha_3^3 - 8 \alpha_2^4 \alpha_1 \\
& + 16 \alpha_1^3 \alpha_3^2 - 68 \alpha_2^4 \alpha_3 - 16 \alpha_2^2 \alpha_3^3) \beta^2 x_1^3 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)), -\frac{1}{6} \\
& (60 \alpha_1^3 \alpha_3^2 - 190 \alpha_2^2 \alpha_1^2 \alpha_3 + 60 \alpha_2^2 \alpha_1 \alpha_3^2 - 45 \alpha_2^4 \alpha_3 + 130 \alpha_2^4 \alpha_1 - 15 \alpha_1^2 \alpha_3^3) \beta^2 \\
& x_1^2 x_4 / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)) - \frac{1}{6} (-500 \alpha_1 \alpha_3 \alpha_2^3 + 40 \alpha_2^3 \alpha_3^2 + 250 \alpha_2^5 + 250 \alpha_1^2 \alpha_2 \alpha_3^2 \\
& - 40 \alpha_1 \alpha_2 \alpha_3^3 + 60 \alpha_1^2 \alpha_2^3 - 60 \alpha_1^3 \alpha_2 \alpha_3) \beta^2 x_1 x_4 x_2 / (
\end{aligned}$$

$$\begin{aligned}
& (4\alpha_1^3\alpha_3 - 17\alpha_1^2\alpha_3^2 + 4\alpha_1\alpha_3^3 - 4\alpha_1^2\alpha_2^2 + 42\alpha_2^2\alpha_1\alpha_3 - 4\alpha_3^2\alpha_2^2 - 25\alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1\alpha_3) - \frac{1}{6}(60\alpha_2^4\alpha_1 - 40\alpha_2^4\alpha_3 - 60\alpha_2^2\alpha_1^2\alpha_3 + 40\alpha_2^2\alpha_1\alpha_3^2)\beta^2x_2^2x_4 \\
& \Big/ ((4\alpha_1^3\alpha_3 - 17\alpha_1^2\alpha_3^2 + 4\alpha_1\alpha_3^3 - 4\alpha_1^2\alpha_2^2 + 42\alpha_2^2\alpha_1\alpha_3 - 4\alpha_3^2\alpha_2^2 - 25\alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1\alpha_3) - \frac{1}{6}(-250\alpha_2^4\alpha_1\alpha_3 + 125\alpha_2^2\alpha_1^2\alpha_3^2 + 125\alpha_2^6)\beta^2x_2^3 \Big/ ( \\
& (4\alpha_1^3\alpha_3 - 17\alpha_1^2\alpha_3^2 + 4\alpha_1\alpha_3^3 - 4\alpha_1^2\alpha_2^2 + 42\alpha_2^2\alpha_1\alpha_3 - 4\alpha_3^2\alpha_2^2 - 25\alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1\alpha_3) - \frac{1}{6} \\
& (-250\alpha_2^6 - 20\alpha_2^2\alpha_1\alpha_3^2 + 20\alpha_2^4\alpha_3 - 250\alpha_2^2\alpha_1^2\alpha_3^2 + 500\alpha_2^4\alpha_1\alpha_3)\beta^2x_1^2x_2 \Big/ \\
& ((4\alpha_1^3\alpha_3 - 17\alpha_1^2\alpha_3^2 + 4\alpha_1\alpha_3^3 - 4\alpha_1^2\alpha_2^2 + 42\alpha_2^2\alpha_1\alpha_3 - 4\alpha_3^2\alpha_2^2 - 25\alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1\alpha_3) - \frac{1}{6}(-150\alpha_2^5\alpha_3 + 225\alpha_1\alpha_2^5 - 150\alpha_1^2\alpha_2\alpha_3^3 + 225\alpha_1^3\alpha_3^2\alpha_2 \\
& + 300\alpha_1\alpha_2^3\alpha_3^2 - 450\alpha_1^2\alpha_3\alpha_2^3)\beta^2x_1x_2^2 \Big/ ( \\
& (4\alpha_1^3\alpha_3 - 17\alpha_1^2\alpha_3^2 + 4\alpha_1\alpha_3^3 - 4\alpha_1^2\alpha_2^2 + 42\alpha_2^2\alpha_1\alpha_3 - 4\alpha_3^2\alpha_2^2 - 25\alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1\alpha_3) - \frac{1}{6}(-2\alpha_1^2\alpha_2\alpha_3^2 - 8\alpha_2^3\alpha_3^2 + 8\alpha_1\alpha_2\alpha_3^3 + 10\alpha_2^5 - 8\alpha_1\alpha_3\alpha_2^3)\beta^2 \\
& x_1^3 \Big/ ( \\
& (4\alpha_1^3\alpha_3 - 17\alpha_1^2\alpha_3^2 + 4\alpha_1\alpha_3^3 - 4\alpha_1^2\alpha_2^2 + 42\alpha_2^2\alpha_1\alpha_3 - 4\alpha_3^2\alpha_2^2 - 25\alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1\alpha_3) - \frac{1}{6}(170\alpha_2^3\alpha_3 - 30\alpha_1\alpha_2^3 + 30\alpha_1^2\alpha_2\alpha_3 + 40\alpha_2\alpha_3^3 - 130\alpha_1\alpha_2\alpha_3^2) \\
& \beta^2x_3^3 \Big/ ( \\
& (4\alpha_1^3\alpha_3 - 17\alpha_1^2\alpha_3^2 + 4\alpha_1\alpha_3^3 - 4\alpha_1^2\alpha_2^2 + 42\alpha_2^2\alpha_1\alpha_3 - 4\alpha_3^2\alpha_2^2 - 25\alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1\alpha_3) - \frac{1}{6}(-80\alpha_3^2\alpha_2^2 + 120\alpha_2^2\alpha_1\alpha_3 - 200\alpha_2^4)\beta^2x_4x_3^2 \Big/ ( \\
& (4\alpha_1^3\alpha_3 - 17\alpha_1^2\alpha_3^2 + 4\alpha_1\alpha_3^3 - 4\alpha_1^2\alpha_2^2 + 42\alpha_2^2\alpha_1\alpha_3 - 4\alpha_3^2\alpha_2^2 - 25\alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1\alpha_3) - \frac{1}{6}(1000\alpha_2^4\alpha_1 - 150\alpha_1^2\alpha_3^3 - 1600\alpha_2^2\alpha_1^2\alpha_3 + 400\alpha_2^2\alpha_1\alpha_3^2 \\
& + 600\alpha_1^3\alpha_3^2 - 250\alpha_2^4\alpha_3)\beta^2x_3^2x_2 \Big/ ( \\
& (4\alpha_1^3\alpha_3 - 17\alpha_1^2\alpha_3^2 + 4\alpha_1\alpha_3^3 - 4\alpha_1^2\alpha_2^2 + 42\alpha_2^2\alpha_1\alpha_3 - 4\alpha_3^2\alpha_2^2 - 25\alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1\alpha_3) - \frac{1}{6}(625\alpha_2^5 - 1000\alpha_1\alpha_3\alpha_2^3 + 375\alpha_1^2\alpha_2\alpha_3^2)\beta^2x_1x_3^2 \Big/ ( \\
& (4\alpha_1^3\alpha_3 - 17\alpha_1^2\alpha_3^2 + 4\alpha_1\alpha_3^3 - 4\alpha_1^2\alpha_2^2 + 42\alpha_2^2\alpha_1\alpha_3 - 4\alpha_3^2\alpha_2^2 - 25\alpha_2^4)
\end{aligned}$$

$$\begin{aligned}
& (-\alpha_2^2 + \alpha_1 \alpha_3) - \frac{1}{6} (40 \alpha_2^3 \alpha_3 + 40 \alpha_1 \alpha_2^3) \beta^2 x_4^2 x_3 \Big/ ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3) - \frac{1}{6} (-850 \alpha_2^4 \alpha_1 + 150 \alpha_2^4 \alpha_3 - 600 \alpha_1^3 \alpha_3^2 + 1450 \alpha_2^2 \alpha_1^2 \alpha_3 \\
& + 150 \alpha_1^2 \alpha_3^3 - 300 \alpha_2^2 \alpha_1 \alpha_3^2) \beta^2 x_1 x_4 x_3 \Big/ ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3) - \frac{1}{6} (-250 \alpha_1^2 \alpha_2 \alpha_3^2 - 250 \alpha_1^2 \alpha_2^3 + 250 \alpha_2^5 + 250 \alpha_1^3 \alpha_2 \alpha_3) \beta^2 x_4 x_3 \\
& x_2 \Big/ ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3) - \frac{1}{6} \\
& (10 \alpha_1^2 \alpha_2 \alpha_3^2 - 40 \alpha_1 \alpha_2 \alpha_3^3 + 190 \alpha_1 \alpha_3 \alpha_2^3 - 200 \alpha_2^5 + 40 \alpha_2^3 \alpha_3^2) \beta^2 x_2^2 x_3 \Big/ ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3) - \frac{1}{6} (-30 \alpha_1^2 \alpha_2^3 - 275 \alpha_1^2 \alpha_2 \alpha_3^2 + 30 \alpha_1^3 \alpha_2 \alpha_3 + 650 \alpha_1 \alpha_3 \alpha_2^3 \\
& + 20 \alpha_1 \alpha_2 \alpha_3^3 - 375 \alpha_2^5 - 20 \alpha_2^3 \alpha_3^2) \beta^2 x_1^2 x_3 \Big/ ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3) - \frac{1}{6} (260 \alpha_2^2 \alpha_1 \alpha_3^2 - 170 \alpha_1^2 \alpha_3^3 + 40 \alpha_1 \alpha_3^4 - 90 \alpha_2^4 \alpha_3 + 40 \alpha_1^3 \alpha_3^2 \\
& - 140 \alpha_2^4 \alpha_1 - 40 \alpha_2^2 \alpha_3^3 + 100 \alpha_2^2 \alpha_1^2 \alpha_3) \beta^2 x_1 x_3 x_2 \Big/ ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3) - \frac{1}{6} (250 \alpha_2^2 \alpha_1^2 \alpha_3 - 250 \alpha_2^4 \alpha_1) \beta^2 x_2 x_4^2 \Big/ ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3) \Big]
\end{aligned}$$

```

> for j from 2 to targetspace do
>   print("Transformation from degree ",j-1," into degree
",j," is exp(ad(Trafo)) with Trafo=");
   print(Trafo[j]);
> od;
"Transformation from degree ", 1, " into degree ", 2, " is exp(ad(Trafo)) with Trafo="

```

$$\left[ \frac{1}{3} \beta (-34 x_3^2 \alpha_1 \alpha_3^3 + 8 x_3^2 \alpha_1^2 \alpha_3^2 + 2 x_3^2 \alpha_2^2 \alpha_1 \alpha_3 + 42 x_3^2 \alpha_3^2 \alpha_2^2 - 30 \alpha_2^4 x_1 x_3 \alpha_1 \right.$$



$$\begin{aligned}
& -100 \alpha_2^3 x_3 x_2 \alpha_1 \alpha_3 + 25 \alpha_2^5 x_3 x_2 + 75 \alpha_2 x_3 x_2 \alpha_1^2 \alpha_3^2 + 12 \alpha_2^3 x_4 x_3 \alpha_1 \\
& -16 \alpha_2 x_4 x_3 \alpha_3^3 - 12 \alpha_2 x_4 x_3 \alpha_1^2 \alpha_3 + 52 \alpha_2 x_4 x_3 \alpha_1 \alpha_3^2 - 68 \alpha_2^3 x_4 x_3 \alpha_3 \\
& -30 \alpha_2 x_1 x_4 \alpha_1^2 \alpha_3^2 + 30 \alpha_2^3 x_1 x_4 \alpha_1^2 + 80 \alpha_2^3 x_1 x_4 \alpha_1 \alpha_3 - 30 \alpha_2 x_1 x_4 \alpha_1^3 \alpha_3 \\
& -50 \alpha_2^5 x_1 x_4 + 50 \alpha_2^4 \alpha_1 x_4 x_2 - 50 \alpha_2^2 \alpha_1^2 x_4 x_2 \alpha_3 + 8 \alpha_2^2 x_4^2 \alpha_3^2 - 10 \alpha_2^4 \alpha_3 x_2^2 \\
& -10 \alpha_2^5 x_1 x_2 + 20 \alpha_2^4 x_4^2 + 20 \alpha_2^4 x_1 x_3 \alpha_3 - 12 \alpha_2^2 x_4^2 \alpha_1 \alpha_3 - 20 \alpha_2^2 x_1 x_3 \alpha_1 \alpha_3^2 \\
& + 30 \alpha_2^2 x_1 x_3 \alpha_1^2 \alpha_3 + 8 x_3^2 \alpha_3^4 - 10 x_3^2 \alpha_2^4 + 4 x_1^2 \alpha_1 \alpha_3^4 - 2 x_1^2 \alpha_2^4 \alpha_1 \\
& + 4 x_1^2 \alpha_1^3 \alpha_3^2 - 4 x_1^2 \alpha_2^2 \alpha_3^3 - 17 x_1^2 \alpha_1^2 \alpha_3^3 - 17 x_1^2 \alpha_2^4 \alpha_3 + 8 \alpha_2^3 x_1 x_2 \alpha_3^2 \\
& - 2 x_1^2 \alpha_2^2 \alpha_1^2 \alpha_3 + 34 x_1^2 \alpha_2^2 \alpha_1 \alpha_3^2 + 2 \alpha_2 x_1 x_2 \alpha_1^2 \alpha_3^2 - 8 \alpha_2 x_1 x_2 \alpha_1 \alpha_3^3 \\
& + 8 \alpha_2^3 x_1 x_2 \alpha_1 \alpha_3 + 10 \alpha_2^2 \alpha_3^2 x_2^2 \alpha_1) / (4 \alpha_1^4 \alpha_3^2 - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 \\
& + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 - 8 \alpha_2^2 \alpha_1 \alpha_3^3 - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 \\
& + 25 \alpha_2^6), -\frac{1}{3} \beta (-10 \alpha_2^5 x_2^2 + 8 \alpha_2^3 x_4^2 \alpha_1 - 15 x_3 x_2 \alpha_1^2 \alpha_3^3 + 40 x_3 x_2 \alpha_2^4 \alpha_1 \\
& + 24 x_3^2 \alpha_2^2 x_4 \alpha_1 \alpha_3 - 100 x_3 x_2 \alpha_2^2 \alpha_1^2 \alpha_3 + 60 x_3 x_2 \alpha_1^3 \alpha_3^2 - 6 \alpha_2^3 x_3^2 \alpha_1 \\
& + 6 \alpha_2 x_3^2 \alpha_1^2 \alpha_3 - 26 \alpha_2 x_3^2 \alpha_1 \alpha_3^2 - 25 \alpha_2^5 x_4 x_2 - 25 \alpha_2^5 x_1^2 + 125 \alpha_2^5 x_1 x_3 \\
& - 8 \alpha_2^2 x_1 x_2 \alpha_1 \alpha_3^2 + 12 \alpha_2^2 x_1 x_2 \alpha_1^2 \alpha_3 - 6 \alpha_2^3 x_1^2 \alpha_1^2 - 12 \alpha_2^4 x_1 x_2 \alpha_1 \\
& + 50 \alpha_2^3 x_1^2 \alpha_1 \alpha_3 + 4 \alpha_2 x_1^2 \alpha_1 \alpha_3^3 + 6 \alpha_2 x_1^2 \alpha_1^3 \alpha_3 - 25 \alpha_2 x_1^2 \alpha_1^2 \alpha_3^2 \\
& + 10 \alpha_2^3 x_2^2 \alpha_1 \alpha_3 + 290 x_4 x_1 \alpha_2^2 \alpha_1^2 \alpha_3 - 120 x_4 x_1 \alpha_1^3 \alpha_3^2 + 30 x_4 x_1 \alpha_1^2 \alpha_3^3 \\
& - 60 x_4 x_1 \alpha_2^2 \alpha_1 \alpha_3^2 + 20 \alpha_2^3 x_4 x_2 \alpha_1 \alpha_3 - 20 \alpha_2 x_4 x_2 \alpha_1^3 \alpha_3 + 5 \alpha_2 x_4 x_2 \alpha_1^2 \alpha_3^2 \\
& + 20 \alpha_2^3 x_4 x_2 \alpha_1^2 - 170 x_4 x_1 \alpha_2^4 \alpha_1 + 75 x_3 \alpha_2 x_1 \alpha_1^2 \alpha_3^2 - 200 x_3 \alpha_2^3 x_1 \alpha_1 \alpha_3 \\
& - 40 x_3 \alpha_2^4 x_4 - 16 x_3 \alpha_2^2 x_4 \alpha_3^2 + 8 \alpha_2 x_3^2 \alpha_3^3 + 34 \alpha_2^3 x_3^2 \alpha_3 + 8 \alpha_2^3 x_4^2 \alpha_3 \\
& - 4 \alpha_2^3 x_1^2 \alpha_3^2 + 8 \alpha_2^4 x_1 \alpha_3 x_2 + 30 x_4 x_1 \alpha_2^4 \alpha_3 + 15 x_3 x_2 \alpha_2^4 \alpha_3) / (4 \alpha_1^4 \alpha_3^2 \\
& - 8 \alpha_2^2 \alpha_1^3 \alpha_3 - 17 \alpha_1^3 \alpha_3^3 + 4 \alpha_2^4 \alpha_1^2 + 59 \alpha_2^2 \alpha_1^2 \alpha_3^2 + 4 \alpha_1^2 \alpha_3^4 - 8 \alpha_2^2 \alpha_1 \alpha_3^3 \\
& - 67 \alpha_2^4 \alpha_1 \alpha_3 + 4 \alpha_2^4 \alpha_3^2 + 25 \alpha_2^6), -\frac{1}{3} \beta (50 x_1^2 \alpha_2^4 + 34 \alpha_2^2 x_1 x_3 \alpha_3 \\
& - 50 x_1^2 \alpha_2^2 \alpha_1 \alpha_3 - 30 \alpha_2 x_1 x_2 \alpha_1 \alpha_3^2 + 45 \alpha_2 x_1 x_2 \alpha_1^2 \alpha_3 - 45 \alpha_2^3 x_1 x_2 \alpha_1 \\
& + 50 \alpha_2 x_1 x_4 \alpha_1 \alpha_3 + 25 \alpha_2^2 x_2^2 \alpha_1 \alpha_3 + 8 x_3 x_1 \alpha_1^2 \alpha_3 - 12 \alpha_2 x_1 x_4 \alpha_1^2 \\
& + 2 \alpha_2 x_3 x_2 \alpha_1 \alpha_3 + 4 x_3 x_1 \alpha_2^2 \alpha_1 - 45 \alpha_2 x_4 x_3 \alpha_1 \alpha_3 - 34 x_3 x_1 \alpha_1 \alpha_3^2 + 8 x_3 x_1 \alpha_3^3 \\
& + 50 \alpha_2^2 \alpha_1 x_4^2 + 30 \alpha_2 x_4 x_3 \alpha_1^2 - 30 x_3^2 \alpha_2^2 \alpha_1 - 12 \alpha_2^2 \alpha_1 x_4 x_2 + 20 x_3^2 \alpha_2^2 \alpha_3 \\
& - 8 \alpha_2 x_3 x_2 \alpha_3^2 + 30 \alpha_2^3 x_1 x_2 \alpha_3 + 8 \alpha_2^2 x_4 x_2 \alpha_3 - 8 \alpha_2 x_1 x_4 \alpha_3^2 - 25 \alpha_2^3 x_4 x_3
\end{aligned}$$

$$\begin{aligned}
& -50 \alpha_2^3 x_1 x_4 + 10 \alpha_2^3 x_3 x_2 - 25 \alpha_2^4 x_2^2) / ( \\
& 4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4), \frac{1}{3} ( \\
& -40 \alpha_1 \alpha_2^3 x_2^2 + 45 \alpha_1 \alpha_2^3 x_1^2 - 2 \alpha_1 \alpha_3 x_3 \alpha_2 x_1 + 235 \alpha_1 \alpha_2^2 x_1 \alpha_3 x_2 + 20 \alpha_1^2 \alpha_2 x_4^2 \\
& + 125 \alpha_2^3 x_3^2 - 25 \alpha_2^3 x_4^2 - 20 \alpha_3 x_3 \alpha_2^2 x_2 - 100 \alpha_2^4 x_2 x_1 + 20 x_4 \alpha_2^3 x_2 - 10 \alpha_2^3 x_1 x_3 \\
& + 30 \alpha_1 x_2 \alpha_3^3 x_1 - 60 \alpha_1^2 \alpha_2^2 x_1 x_2 + 60 \alpha_1^2 \alpha_3 x_4 x_3 - 45 \alpha_1^2 \alpha_3 \alpha_2 x_1^2 \\
& + 40 \alpha_1^2 x_2^2 \alpha_3 \alpha_2 - 135 \alpha_1^2 x_2 \alpha_3^2 x_1 + 60 \alpha_3 x_1 x_2 \alpha_1^3 + 30 \alpha_1 \alpha_2 x_1^2 \alpha_3^2 \\
& - 75 \alpha_1 \alpha_3 \alpha_2 x_3^2 - 5 \alpha_1 \alpha_3 \alpha_2 x_4^2 - 15 \alpha_1 x_3 \alpha_3^2 x_4 - 10 \alpha_1 x_2^2 \alpha_3^2 \alpha_2 - 130 \alpha_1 x_3 \alpha_2^2 x_4 \\
& + 12 \alpha_1 x_4 \alpha_2^2 x_1 + 10 \alpha_2^3 x_2^2 \alpha_3 + 45 x_3 \alpha_2^2 x_4 \alpha_3 - 8 \alpha_3 x_4 \alpha_2^2 x_1 - 30 \alpha_2^3 x_1^2 \alpha_3 \\
& - 30 \alpha_2^2 x_1 \alpha_3^2 x_2 + 8 \alpha_2 x_1 x_3 \alpha_3^2) \beta / ( \\
& 4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \Big]
\end{aligned}$$

"Transformation from degree ", 2, " into degree ", 3, " is exp(ad(Trafo)) with Trafo="

$$\begin{aligned}
& \left[ \frac{1}{96} \beta^2 (6399540 \alpha_2^4 x_3^3 \alpha_1^4 \alpha_3^3 - 9963370 \alpha_2^6 x_3^3 \alpha_1^3 \alpha_3^2 - 897725 \alpha_2^4 x_3^3 \alpha_1^5 \alpha_3^2 \right. \\
& - 64335 \alpha_2^2 x_3^3 \alpha_3^8 \alpha_1 + 6661885 \alpha_2^8 x_3^3 \alpha_1^2 \alpha_3 - 16548345 \alpha_2^8 x_3^3 \alpha_3^2 \alpha_1 \\
& + 950245 \alpha_2^6 x_3^3 \alpha_1^4 \alpha_3 + 6230305 \alpha_2^4 x_3^3 \alpha_1^2 \alpha_3^5 - 11627905 \alpha_2^4 x_3^3 \alpha_1^3 \alpha_3^4 \\
& + 278375 \alpha_2^2 x_3^3 \alpha_1^6 \alpha_3^3 - 1512755 \alpha_2^2 x_3^3 \alpha_1^5 \alpha_3^4 - 1213150 \alpha_2^4 x_3^3 \alpha_3^6 \alpha_1 \\
& - 783430 \alpha_2^9 x_1 x_3 x_2 \alpha_3^3 - 72955 \alpha_2^7 x_4^3 \alpha_1^4 + 20485080 \alpha_2^6 x_3^3 \alpha_3^3 \alpha_1^2 \\
& + 471155 \alpha_2^2 x_3^3 \alpha_3^7 \alpha_1^2 + 33840 \alpha_2^4 x_3^3 \alpha_1^6 \alpha_3 - 7817450 \alpha_2^6 x_3^3 \alpha_3^4 \alpha_1 \\
& - 15480 \alpha_2^2 x_3^3 \alpha_1^7 \alpha_3^2 - 1693430 \alpha_2^2 x_3^3 \alpha_3^6 \alpha_1^3 + 2533770 \alpha_2^2 x_3^3 \alpha_1^4 \alpha_3^5 \\
& - 3600 \alpha_2^4 x_1 x_4^2 \alpha_1^8 + 6737580 \alpha_2^5 x_3^2 x_4 \alpha_1^2 \alpha_3^4 + 137840 \alpha_2^7 x_3^2 x_4 \alpha_1^4 \\
& + 935940 \alpha_2^2 x_3^2 x_4 \alpha_1^6 \alpha_3^4 - 91100 \alpha_2^7 x_3^2 x_4 \alpha_1^3 \alpha_3^3 - 6911970 \alpha_2^3 x_3^2 x_4 \alpha_1^3 \alpha_3^5 \\
& + 2059160 \alpha_2^2 x_3^2 x_4 \alpha_1^4 \alpha_3^6 - 3584855 \alpha_2^3 x_3^2 x_4 \alpha_1^5 \alpha_3^3 + 2330000 \alpha_2^3 x_3^2 x_4 \alpha_1^2 \alpha_3^6 \\
& - 925020 \alpha_2^2 x_3^2 x_4 \alpha_1^3 \alpha_3^7 - 15461550 \alpha_2^4 x_4 x_3 x_2 \alpha_1^5 \alpha_3^3 \\
& - 1353400 \alpha_2^5 x_3^2 x_4 \alpha_3^5 \alpha_1 - 18360 \alpha_2^6 x_3^3 \alpha_1^5 - 1569100 \alpha_2^{10} x_3^3 \alpha_1 \\
& + 3334575 \alpha_2^8 x_3^3 \alpha_3^3 - 328195 \alpha_2^8 x_3^3 \alpha_1^3 + 782495 \alpha_2^6 x_3^3 \alpha_3^5 + 80535 \alpha_2^4 x_3^3 \alpha_3^7 \\
& + 5197900 \alpha_2^{10} x_3^3 \alpha_3 + 2700 \alpha_2^2 x_3^3 \alpha_3^9 + 578700 \alpha_2^3 x_2 x_3^2 \alpha_1^7 \alpha_3^2 \\
& - 759900 \alpha_2^2 x_2 x_3^2 \alpha_1^4 \alpha_3^7 + 6905750 \alpha_2^9 x_2 x_3^2 \alpha_3^2 \alpha_1 + 2972325 \alpha_2^7 x_2 x_3^2 \alpha_3^4 \alpha_1 \\
& \left. - 1996200 \alpha_2^2 x_2 x_3^2 \alpha_1^6 \alpha_3^5 - 3038325 \alpha_2^7 x_2 x_3^2 \alpha_1^4 \alpha_3 + 980400 \alpha_2^2 x_2 x_3^2 \alpha_1^7 \alpha_3^4 \right)
\end{aligned}$$

$$\begin{aligned}
& + 216 x_1^3 \alpha_1 \alpha_3^{11} - 7933475 \alpha_2^3 x_2 x_3^2 \alpha_1^4 \alpha_3^5 - 214200 \alpha_2^2 x_4 x_3 x_2 \alpha_1^3 \alpha_3^7 \\
& + 5107200 \alpha_2^5 x_2 x_3^2 \alpha_1^5 \alpha_3^2 + 1840800 \alpha_2 x_2 x_3^2 \alpha_1^5 \alpha_3^6 - 21600 \alpha_2^3 x_2 x_3^2 \alpha_1^8 \alpha_3 \\
& + 648 \alpha_2^5 x_2 x_3^2 \alpha_1^5 \alpha_3 + 8856 \alpha_2^3 x_2 x_3^2 \alpha_1^6 \alpha_3^2 + 10758 \alpha_2 x_2 x_3^2 \alpha_3^9 \alpha_1 \\
& + 108000 \alpha_2 x_2 x_3^2 \alpha_1^3 \alpha_3^8 - 741100 \alpha_2^9 x_2 x_3^2 \alpha_3^3 - 410226 \alpha_2 x_2 x_3^2 \alpha_1^5 \alpha_3^5 \\
& - 91200 \alpha_2^{11} x_2 x_3^2 + 1553664 \alpha_2^3 x_2 x_3^2 \alpha_1^4 \alpha_3^4 + 72696 \alpha_2^9 x_2 x_3^2 \alpha_1 \alpha_3 \\
& + 873558 \alpha_2^7 x_2 x_3^2 \alpha_1^2 \alpha_3^2 - 2004972 \alpha_2^5 x_2 x_3^2 \alpha_1^3 \alpha_3^3 - 5070 \alpha_2 x_2 x_3^2 \alpha_1^2 \alpha_3^8 \\
& + 645450 \alpha_2^9 x_2 x_3^2 \alpha_1^3 - 6408 \alpha_2 x_2 x_3^2 \alpha_1^7 \alpha_3^3 + 43884 \alpha_2^3 x_2 x_3^2 \alpha_3^7 \alpha_1 \\
& + 4326 \alpha_2^7 x_2 x_3^2 \alpha_1^3 \alpha_3 + 180078 \alpha_2^5 x_2 x_3^2 \alpha_1^4 \alpha_3^2 + 4306080 \alpha_2^5 x_2 x_3^2 \alpha_1^2 \alpha_3^4 \\
& + 96570 \alpha_2 x_2 x_3^2 \alpha_1^6 \alpha_3^4 - 3351726 \alpha_2^7 x_2 x_3^2 \alpha_1^3 \alpha_3^3 - 2518302 \alpha_2^3 x_2 x_3^2 \alpha_1^3 \alpha_3^5 \\
& + 569580 \alpha_2 x_2 x_3^2 \alpha_1^4 \alpha_3^6 + 837318 \alpha_2^3 x_2 x_3^2 \alpha_1^2 \alpha_3^6 - 253782 \alpha_2^3 x_2 x_3^2 \alpha_1^5 \alpha_3^3 \\
& - 885732 \alpha_2^5 x_2 x_3^2 \alpha_3^5 \alpha_1 - 254124 \alpha_2 x_2 x_3^2 \alpha_1^3 \alpha_3^7 - 471540 \alpha_2^5 x_2 x_4 \alpha_1^5 \alpha_3 \\
& + 477900 \alpha_2^3 x_3 x_4 \alpha_1^6 \alpha_3^2 - 2078440 \alpha_2 x_3 x_4 \alpha_1^5 \alpha_3^5 - 12240 \alpha_2 x_3 x_4 \alpha_3^9 \alpha_1 \\
& + 9802460 \alpha_2^9 x_3 x_4 \alpha_1 \alpha_3 - 4687000 \alpha_2^{11} x_3 x_4 + 7682240 \alpha_2^3 x_3 x_4 \alpha_1^4 \alpha_3^4 \\
& - 3019720 \alpha_2^7 x_3 x_4 \alpha_1^2 \alpha_3^2 - 7821040 \alpha_2^5 x_3 x_4 \alpha_1^3 \alpha_3^3 - 230735 \alpha_2^3 x_3 x_4 \alpha_3^7 \alpha_1 \\
& + 164980 \alpha_2 x_3 x_4 \alpha_1^2 \alpha_3^8 + 7920 \alpha_2 x_3 x_4 \alpha_1^8 \alpha_3^2 - 20160 \alpha_2^3 x_3 x_4 \alpha_1^7 \alpha_3 \\
& + 522000 \alpha_2^4 x_4 x_3 x_2 \alpha_1^2 \alpha_3^6 - 1940860 \alpha_2^7 x_3 x_4 \alpha_1^3 \alpha_3 + 4610045 \alpha_2^5 x_3 x_4 \alpha_1^4 \alpha_3^2 \\
& - 7002225 x_1 x_3^2 \alpha_2^4 \alpha_1^4 \alpha_3^4 - 2379900 x_1 x_3^2 \alpha_2^{10} \alpha_1 \alpha_3 + 8560900 x_1 x_3^2 \alpha_2^6 \alpha_1^3 \alpha_3^3 \\
& - 1757425 x_1 x_3^2 \alpha_2^4 \alpha_1^6 \alpha_3^2 + 10062275 x_1 x_3^2 \alpha_2^8 \alpha_1^3 \alpha_3 + 1943225 x_1 x_3^2 \alpha_2^6 \alpha_1^5 \alpha_3 \\
& - 37800 x_1 x_3^2 \alpha_1^8 \alpha_3^2 \alpha_2^2 - 13712650 x_1 x_3^2 \alpha_2^6 \alpha_1^4 \alpha_3^2 + 79200 x_1 x_3^2 \alpha_1^7 \alpha_2^4 \alpha_3 \\
& - 2788700 x_1 x_3^2 \alpha_2^{10} \alpha_1^2 + 6300 x_1 x_3^2 \alpha_2^4 \alpha_3^7 \alpha_1 - 142225 x_1 x_3^2 \alpha_2^6 \alpha_3^5 \alpha_1 \\
& - 41400 x_1 x_3^2 \alpha_1^6 \alpha_2^6 - 1166875 x_1 x_3^2 \alpha_2^8 \alpha_3^3 \alpha_1 + 37250 x_1 x_3^2 \alpha_2^4 \alpha_3^6 \alpha_1^2 \\
& - 2700 x_1 x_3^2 \alpha_1^2 \alpha_3^8 \alpha_2^2 + 25275 x_1 x_3^2 \alpha_1^3 \alpha_3^7 \alpha_2^2 + 8352775 x_1 x_3^2 \alpha_1^5 \alpha_3^3 \alpha_2^4 \\
& - 1913700 x_1 x_3^2 \alpha_1^6 \alpha_3^4 \alpha_2^2 + 1119325 x_1 x_3^2 \alpha_2^4 \alpha_3^5 \alpha_1^3 + 1280000 x_1 x_3^2 \alpha_2^{12} \\
& - 490800 x_1 x_3^2 \alpha_1^4 \alpha_3^6 \alpha_2^2 + 4320 \alpha_2^2 x_4 x_3 x_2 \alpha_1^7 \alpha_3^2 - 100450 x_1 x_3^2 \alpha_2^6 \alpha_3^4 \alpha_1^2 \\
& - 406800 \alpha_2^6 x_4 x_3 x_2 \alpha_3^5 \alpha_1 + 530175 x_1 x_3^2 \alpha_1^7 \alpha_3^3 \alpha_2^2 - 2348325 x_1 x_3^2 \alpha_2^8 \alpha_3^2 \alpha_1^2 \\
& - 152300 \alpha_2^2 x_3 x_4 \alpha_1^7 \alpha_3^3 + 4218375 \alpha_2^7 x_2 x_3^2 \alpha_3^2 \alpha_1^3 + 25230 x_1 x_3^2 \alpha_2^2 \alpha_3^9 \\
& - 3694725 \alpha_2^3 x_2 x_3^2 \alpha_1^6 \alpha_3^3 + 8041375 \alpha_2^3 x_2 x_3^2 \alpha_1^5 \alpha_3^4 + 242100 \alpha_2^5 x_2 x_3^2 \alpha_3^6 \alpha_1 \\
& + 2192300 \alpha_2^9 x_2 x_3^2 \alpha_1^2 \alpha_3 - 281700 \alpha_2^3 x_2 x_3^2 \alpha_3^7 \alpha_1^2 - 183900 \alpha_2 x_2 x_3^2 \alpha_1^8 \alpha_3^3
\end{aligned}$$

$$\begin{aligned}
& + 10800 \alpha_2 x_2 x_3^2 \alpha_1^9 \alpha_3^2 - 46300 x_1^3 \alpha_2^{10} \alpha_3^3 - 10928850 \alpha_2^5 x_2 x_3^2 \alpha_1^4 \alpha_3^3 \\
& - 13344375 \alpha_2^7 x_2 x_3^2 \alpha_3^3 \alpha_1^2 + 14113300 \alpha_2^5 x_2 x_3^2 \alpha_1^3 \alpha_3^4 \\
& - 603000 \alpha_2^5 x_2 x_3^2 \alpha_1^6 \alpha_3 + 3023425 \alpha_2^3 x_2 x_3^2 \alpha_3^6 \alpha_1^3 - 70000 x_1^3 \alpha_2^{12} \alpha_3 \\
& - 4494750 \alpha_2^5 x_2 x_3^2 \alpha_3^5 \alpha_1^2 - 2192720 \alpha_2^2 x_3 x_4^2 \alpha_1^4 \alpha_3^5 \\
& - 15602980 \alpha_2^6 x_3 x_4^2 \alpha_3^3 \alpha_1^2 - 184515 \alpha_2^6 x_3 x_4^2 \alpha_3^5 + 1889550 x_1 x_3^2 \alpha_1^5 \alpha_3^5 \alpha_2^2 \\
& + 8120 \alpha_2^2 x_3 x_4^2 \alpha_1^7 \alpha_3^2 - 216 x_1^3 \alpha_2^2 \alpha_3^{10} + 54930 x_1 x_3^2 \alpha_2^2 \alpha_1^6 \alpha_3^3 \\
& - 209088 x_1 x_3^2 \alpha_2^6 \alpha_3^2 \alpha_1^3 - 47436 x_1 x_3^2 \alpha_2^8 \alpha_1^2 \alpha_3^2 - 417648 x_1 x_3^2 \alpha_2^2 \alpha_1^5 \alpha_3^4 \\
& - 288336 x_1 x_3^2 \alpha_3^8 \alpha_2^2 \alpha_1 - 1348602 x_1 x_3^2 \alpha_3^6 \alpha_2^4 \alpha_1 + 1156404 x_1 x_3^2 \alpha_2^6 \alpha_3^3 \alpha_1^2 \\
& + 1047270 x_1 x_3^2 \alpha_3^7 \alpha_2^2 \alpha_1^2 + 1080 x_1 x_3^2 \alpha_3^{11} + 648 x_1 x_3^2 \alpha_1^6 \alpha_2^4 \alpha_3 \\
& + 535872 x_1 x_3^2 \alpha_2^4 \alpha_1^4 \alpha_3^3 - 1644072 x_1 x_3^2 \alpha_3^6 \alpha_2^2 \alpha_1^3 - 1922748 x_1 x_3^2 \alpha_2^4 \alpha_1^3 \alpha_3^4 \\
& - 1944 x_1 x_3^2 \alpha_1^7 \alpha_2^2 \alpha_3^2 + 2687964 x_1 x_3^2 \alpha_2^4 \alpha_3^5 \alpha_1^2 - 2016120 x_1 x_3^2 \alpha_2^6 \alpha_3^4 \alpha_1 \\
& - 3600 x_1^3 \alpha_2^8 \alpha_3^5 + 4422 x_1 x_3^2 \alpha_2^6 \alpha_1^4 \alpha_3^4 - 27696 x_1 x_3^2 \alpha_2^8 \alpha_3^2 \alpha_1 \\
& - 45810 x_1 x_3^2 \alpha_2^4 \alpha_1^5 \alpha_3^2 + 1224570 x_1 x_3^2 \alpha_1^2 \alpha_3^4 \alpha_2^5 + 3444000 \alpha_2^2 x_4 x_3 x_2 \alpha_1^6 \alpha_3^4 \\
& + 1772600 \alpha_2^2 x_4 x_3 x_2 \alpha_1^4 \alpha_3^6 + 35772 \alpha_2^4 x_4 x_3 x_2 \alpha_3^7 - 1955670 \alpha_2^9 x_3^2 x_4 \alpha_3^2 \\
& - 6567850 \alpha_2^4 x_4 x_3 x_2 \alpha_1^3 \alpha_3^5 - 203965 \alpha_2^5 x_4 \alpha_3^3 \alpha_1^5 + 99000 \alpha_2^8 x_4 x_3 x_2 \alpha_3^4 \\
& + 5657400 \alpha_2^{10} x_4 x_3 x_2 \alpha_1^2 + 1086400 \alpha_2^{10} x_4 x_3 x_2 \alpha_3^2 - 27000 x_1^3 \alpha_1^7 \alpha_2^6 \\
& - 4035765 \alpha_2^4 x_3 x_4^2 \alpha_1^2 \alpha_3^5 - 34960 \alpha_2^4 x_3 x_4^2 \alpha_1^6 \alpha_3 + 10375975 \alpha_2^8 x_3 x_4^2 \alpha_3^2 \alpha_1 \\
& + 12217830 \alpha_2^6 x_3 x_4^2 \alpha_1^3 \alpha_3^2 + 923400 \alpha_2^4 x_3 x_4^2 \alpha_1^5 \alpha_3^2 - 1678420 \alpha_2^7 x_4 \alpha_1^3 \alpha_3^3 \\
& + 21600 \alpha_2^2 x_3 x_4^2 \alpha_3^8 \alpha_1 - 6509075 \alpha_2^4 x_3 x_4^2 \alpha_1^4 \alpha_3^3 - 10663275 \alpha_2^8 x_3 x_4^2 \alpha_1^2 \alpha_3^2 \\
& - 1444605 \alpha_2^6 x_3 x_4^2 \alpha_1^4 \alpha_3 + 1331520 \alpha_2^2 x_3 x_4^2 \alpha_1^5 \alpha_3^4 + 487515 \alpha_2^4 x_3 x_4^2 \alpha_3^6 \alpha_1 \\
& - 1071625 \alpha_2^8 x_3 x_4^2 \alpha_3^3 + 9702225 \alpha_2^4 x_3 x_4^2 \alpha_1^3 \alpha_3^4 - 194320 \alpha_2^2 x_3 x_4^2 \alpha_1^6 \alpha_3^3 \\
& - 254400 \alpha_2^2 x_3 x_4^2 \alpha_3^7 \alpha_1^2 + 3950130 \alpha_2^6 x_3 x_4^2 \alpha_3^4 \alpha_1 - 1858450 x_1^3 \alpha_1^3 \alpha_2^{10} \\
& + 1440 \alpha_2^2 x_3 x_4^2 \alpha_1^8 \alpha_3 + 7152 \alpha_2 x_1 x_4 x_3 \alpha_1^7 \alpha_3^3 + 912 \alpha_2^7 x_1 x_4 x_3 \alpha_1^4 \\
& + 139180 \alpha_2^7 x_1 x_4 x_3 \alpha_1^3 \alpha_3 - 423268 \alpha_2^5 x_1 x_4 x_3 \alpha_1^4 \alpha_3^2 \\
& - 7165824 \alpha_2^5 x_1 x_4 x_3 \alpha_1^2 \alpha_3^4 + 5801412 \alpha_2^7 x_1 x_4 x_3 \alpha_1 \alpha_3^3 \\
& + 1230100 \alpha_2^9 x_1 x_4 x_3 \alpha_1^3 - 888360 \alpha_2 x_1 x_4 x_3 \alpha_1^4 \alpha_3^6 - 111500 \alpha_2 x_1 x_4 x_3 \alpha_1^6 \alpha_3^4 \\
& + 11808 \alpha_2^9 x_1 x_4 x_3 \alpha_1^2 + 6660 \alpha_2^5 x_4^3 \alpha_3^6 + 381620 \alpha_2^3 x_1 x_4 x_3 \alpha_1^5 \alpha_3^3 \\
& + 4074724 \alpha_2^3 x_1 x_4 x_3 \alpha_1^3 \alpha_3^5 - 2550100 \alpha_2^3 x_1 x_4 x_3 \alpha_1^2 \alpha_3^6
\end{aligned}$$

$$\begin{aligned}
& + 678056 \alpha_2 x_1 x_4 x_3 \alpha_1^3 \alpha_3^7 - 1854352 \alpha_2^9 x_1 x_4 x_3 \alpha_3^2 + 3297656 \alpha_2^5 x_1 x_4 x_3 \alpha_3^5 \alpha_1 \\
& - 1468812 \alpha_2^7 x_1 x_4 x_3 \alpha_3^4 - 1094080 \alpha_2^4 x_4 x_3 x_2 \alpha_1^2 \alpha_3^5 \\
& + 3583776 \alpha_2^8 x_4 x_3 x_2 \alpha_3^2 \alpha_1 + 4140 \alpha_2^3 x_3^2 x_4 \alpha_3^8 - 8064 \alpha_2^4 x_4 x_3 x_2 \alpha_1^6 \alpha_3 \\
& + 174608 \alpha_2^4 x_4 x_3 x_2 \alpha_1^5 \alpha_3^2 + 12240 \alpha_2^5 x_3^2 x_4 \alpha_1^6 + 1513920 \alpha_2^6 x_4 x_3 x_2 \alpha_1^3 \alpha_3^2 \\
& - 1182284 \alpha_2^4 x_4 x_3 x_2 \alpha_1^4 \alpha_3^3 - 2880 \alpha_2^4 x_2^2 x_3 \alpha_3^8 + 2470350 \alpha_2^4 x_4 x_3 x_2 \alpha_1^6 \alpha_3^2 \\
& + 3744 \alpha_2^6 x_4 x_3 x_2 \alpha_1^5 - 3750 x_1^3 \alpha_1^2 \alpha_3^{10} - 706344 \alpha_2^8 x_4 x_3 x_2 \alpha_1^2 \alpha_3 \\
& - 136528 \alpha_2^6 x_4 x_3 x_2 \alpha_1^4 \alpha_3 + 17155 \alpha_2^5 x_3^2 x_4 \alpha_3^6 - 126576 \alpha_2^4 x_4 x_3 x_2 \alpha_3^6 \alpha_1 \\
& + 314388 \alpha_2^2 x_4 x_3 x_2 \alpha_1^5 \alpha_3^4 - 66912 \alpha_2^2 x_4 x_3 x_2 \alpha_1^6 \alpha_3^3 \\
& + 2635312 \alpha_2^4 x_4 x_3 x_2 \alpha_1^3 \alpha_3^4 + 1096064 \alpha_2^6 x_4 x_3 x_2 \alpha_3^4 \alpha_1 + 73280 \alpha_2^{10} x_4 x_3 x_2 \alpha_1 \\
& + 25728 \alpha_2^2 x_4 x_3 x_2 \alpha_3^7 \alpha_1^2 - 298888 \alpha_2^8 x_4 x_3 x_2 \alpha_3^3 - 68870 \alpha_2^9 x_3^2 x_4 \alpha_1^2 \\
& - 4546992 \alpha_2^6 x_4 x_3 x_2 \alpha_3^3 \alpha_1^2 + 133248 \alpha_2^6 x_4 x_3 x_2 \alpha_3^5 - 596976 \alpha_2^2 x_4 x_3 x_2 \alpha_1^4 \alpha_3^5 \\
& + 30992 \alpha_2^8 x_4 x_3 x_2 \alpha_1^3 + 340104 \alpha_2^2 x_4 x_3 x_2 \alpha_3^6 \alpha_1^3 - 1042720 \alpha_2^{10} x_4 x_3 x_2 \alpha_3 \\
& - 173080 \alpha_2^7 x_3^2 x_4 \alpha_3^4 + 1278760 \alpha_2^2 x_3^2 x_4 \alpha_3^6 \alpha_1^3 - 2749500 \alpha_2^6 x_4 x_3 x_2 \alpha_1^5 \alpha_3 \\
& - 4286400 \alpha_2^2 x_4 x_3 x_2 \alpha_1^5 \alpha_3^5 - 11096200 \alpha_2^{10} x_4 x_3 x_2 \alpha_1 \alpha_3 \\
& + 18686050 \alpha_2^4 x_4 x_3 x_2 \alpha_1^4 \alpha_3^4 + 1840000 \alpha_2^{12} x_4 x_3 x_2 \\
& + 26839650 \alpha_2^8 x_4 x_3 x_2 \alpha_1^2 \alpha_3^2 - 31983100 \alpha_2^6 x_4 x_3 x_2 \alpha_1^3 \alpha_3^3 \\
& + 23400 \alpha_2^2 x_4 x_3 x_2 \alpha_1^8 \alpha_3^2 - 11880 \alpha_2^6 x_1^2 x_3 \alpha_1^6 - 52200 \alpha_2^4 x_4 x_3 x_2 \alpha_1^7 \alpha_3 \\
& + 2340 \alpha_2^4 x_1^2 x_3 \alpha_3^8 - 739400 \alpha_2^2 x_4 x_3 x_2 \alpha_1^7 \alpha_3^3 + 28800 \alpha_2^6 x_4 x_3 x_2 \alpha_1^6 \\
& + 26194500 \alpha_2^6 x_4 x_3 x_2 \alpha_1^4 \alpha_3^2 + 1018550 \alpha_2^8 x_4 x_3 x_2 \alpha_1^4 \\
& + 8877300 \alpha_2^6 x_4 x_3 x_2 \alpha_1^2 \alpha_3^4 - 19834350 \alpha_2^8 x_4 x_3 x_2 \alpha_1^3 \alpha_3 \\
& - 5168450 \alpha_2^8 x_4 x_3 x_2 \alpha_1^3 \alpha_3^3 + 2160 \alpha_2^2 x_4 x_3 x_2 \alpha_3^9 - 28272 \alpha_2^9 x_2^2 x_3^2 \alpha_1^2 \\
& - 169200 \alpha_2^5 x_1 x_4 x_3 \alpha_3^6 \alpha_1 + 140400 \alpha_2^3 x_1 x_4 x_3 \alpha_3^7 \alpha_1^2 + 28800 \alpha_2^5 x_1 x_4 x_3 \alpha_1^7 \\
& + 439400 \alpha_2^7 x_1 x_4 x_3 \alpha_1^5 + 21600 \alpha_2 x_1 x_4 x_3 \alpha_1^9 \alpha_3^2 - 314400 \alpha_2 x_1 x_4 x_3 \alpha_1^8 \alpha_3^3 \\
& - 4126000 \alpha_2^{11} x_1 x_4 x_3 \alpha_1 + 280938 \alpha_2^7 x_2^2 x_3^2 \alpha_3^4 - 202100 \alpha_2^5 x_1 x_4 x_3 \alpha_1^4 \alpha_3^3 \\
& + 7820450 \alpha_2^7 x_1 x_4 x_3 \alpha_3^3 \alpha_1^2 - 1155400 \alpha_2^5 x_1 x_4 x_3 \alpha_1^6 \alpha_3 \\
& - 3378600 \alpha_2^5 x_1 x_4 x_3 \alpha_1^3 \alpha_3^4 + 567090 \alpha_2^9 x_4^3 \alpha_3^2 - 710550 \alpha_2^3 x_1 x_4 x_3 \alpha_3^6 \alpha_1^3 \\
& - 259135 \alpha_2^8 x_2^2 x_3 \alpha_3^4 + 1894700 \alpha_2^5 x_1 x_4 x_3 \alpha_3^5 \alpha_1^2 + 9600 \alpha_2 x_1 x_4 x_3 \alpha_1^4 \alpha_3^7 \\
& + 219630 \alpha_2^{10} x_2^2 x_3 \alpha_1^2 + 1030400 \alpha_2^3 x_1 x_4 x_3 \alpha_1^7 \alpha_3^2 + 66600 \alpha_2^7 x_1 x_4 x_3 \alpha_3^5
\end{aligned}$$

$$\begin{aligned}
& -5303700 \alpha_2^9 x_1 x_4 x_3 \alpha_3^2 \alpha_1 - 1712350 \alpha_2^7 x_1 x_4 x_3 \alpha_3^4 \alpha_1 \\
& -1735200 \alpha_2 x_1 x_4 x_3 \alpha_1^6 \alpha_3^5 - 4941250 \alpha_2^7 x_1 x_4 x_3 \alpha_1^4 \alpha_3 \\
& +1263000 \alpha_2 x_1 x_4 x_3 \alpha_1^7 \alpha_3^4 + 7200 \alpha_2^6 x_2^2 x_3 \alpha_1^6 + 7536200 \alpha_2^5 x_1 x_4 x_3 \alpha_1^5 \alpha_3^2 \\
& -1055350 \alpha_2^3 x_1 x_4 x_3 \alpha_1^4 \alpha_3^5 - 50400 \alpha_2^3 x_1 x_4 x_3 \alpha_1^8 \alpha_3 + 1124000 \alpha_2^{11} x_1 x_4 x_3 \alpha_3 \\
& -2160 \alpha_2 x_1 x_4 x_3 \alpha_3^{10} - 52908 \alpha_2^3 x_1 x_4 x_3 \alpha_3^8 + 793200 \alpha_2 x_1 x_4 x_3 \alpha_1^5 \alpha_3^6 \\
& -16272 \alpha_2^3 x_1 x_4 x_3 \alpha_1^6 \alpha_3^2 + 8208 \alpha_2^5 x_1 x_4 x_3 \alpha_1^5 \alpha_3 - 37800 \alpha_2 x_1 x_4 x_3 \alpha_1^3 \alpha_3^8 \\
& +518600 \alpha_2^9 x_1 x_4 x_3 \alpha_3^3 + 514844 \alpha_2 x_1 x_4 x_3 \alpha_1^5 \alpha_3^5 + 39948 \alpha_2 x_1 x_4 x_3 \alpha_3^9 \alpha_1 \\
& +294256 \alpha_2^9 x_1 x_4 x_3 \alpha_1 \alpha_3 + 124800 \alpha_2^{11} x_1 x_4 x_3 + 978168 \alpha_2^9 x_2^2 x_3^2 \alpha_3^2 \\
& +3524968 \alpha_2^5 x_1 x_4 x_3 \alpha_1^3 \alpha_3^3 - 2241120 \alpha_2^3 x_1 x_4 x_3 \alpha_1^4 \alpha_3^4 \\
& -2230708 \alpha_2^7 x_1 x_4 x_3 \alpha_1^2 \alpha_3^2 - 237980 \alpha_2 x_1 x_4 x_3 \alpha_1^2 \alpha_3^8 + 92585 \alpha_2^7 x_4^3 \alpha_3^4 \\
& +634456 \alpha_2^3 x_1 x_4 x_3 \alpha_3^7 \alpha_1 - 428876 \alpha_2^5 x_1 x_4 x_3 \alpha_3^6 + 3353670 \alpha_2^5 x_1 x_3 x_2 \alpha_1^5 \alpha_3^2 \\
& -398200 \alpha_2^{11} x_1 x_3 x_2 \alpha_3 - 24480 \alpha_2 x_1 x_3 x_2 \alpha_1^2 \alpha_3^9 - 17280 \alpha_2^3 x_1 x_3 x_2 \alpha_1^8 \alpha_3 \\
& +189850 \alpha_2^9 x_1 x_3 x_2 \alpha_1^3 + 1260960 \alpha_2 x_1 x_3 x_2 \alpha_1^5 \alpha_3^6 - 17238 \alpha_2^3 x_2^2 x_3^2 \alpha_3^8 \\
& +425760 \alpha_2^4 x_2^2 x_3 \alpha_1^6 \alpha_3^2 - 4140 \alpha_2^5 x_4^3 \alpha_1^6 - 1080 \alpha_2 x_2^2 x_3^2 \alpha_3^{10} \\
& +2880 \alpha_2^2 x_2^2 x_3 \alpha_3^9 \alpha_1 - 386700 \alpha_2^6 x_2^2 x_3 \alpha_1^5 \alpha_3 + 4806960 \alpha_2^{10} x_2^2 x_3 \alpha_1 \alpha_3 \\
& -928000 \alpha_2^2 x_2^2 x_3 \alpha_1^5 \alpha_3^5 + 3114655 \alpha_2^4 x_2^2 x_3 \alpha_1^4 \alpha_3^4 - 1877000 \alpha_2^{12} x_2^2 x_3 \\
& -2830465 \alpha_2^8 x_2^2 x_3 \alpha_1^2 \alpha_3^2 - 2286150 \alpha_2^6 x_2^2 x_3 \alpha_1^3 \alpha_3^3 + 55180 \alpha_2^4 x_2^2 x_3 \alpha_3^7 \alpha_1 \\
& -15800 \alpha_2^2 x_2^2 x_3 \alpha_1^2 \alpha_3^8 + 7200 \alpha_2^2 x_2^2 x_3 \alpha_1^8 \alpha_3^2 - 14400 \alpha_2^4 x_2^2 x_3 \alpha_1^7 \alpha_3 \\
& -39380 \alpha_2^6 x_2^2 x_3 \alpha_3^6 + 3494460 \alpha_2^6 x_2^2 x_3 \alpha_1^4 \alpha_3^2 - 151880 \alpha_2^2 x_2^2 x_3 \alpha_1^7 \alpha_3^3 \\
& -1718285 \alpha_2^8 x_2^2 x_3 \alpha_1^3 \alpha_3 + 112820 \alpha_2^8 x_2^2 x_3 \alpha_1^4 + 1875505 \alpha_2^8 x_2^2 x_3 \alpha_1 \alpha_3^3 \\
& -946560 \alpha_2^6 x_2^2 x_3 \alpha_1^2 \alpha_3^4 + 765560 \alpha_2^2 x_2^2 x_3 \alpha_1^6 \alpha_3^4 - 55014 \alpha_2^5 x_2^2 x_3 \alpha_3^6 \\
& +259040 \alpha_2^2 x_2^2 x_3 \alpha_1^4 \alpha_3^6 - 299315 \alpha_2^4 x_2^2 x_3 \alpha_1^3 \alpha_3^5 + 111440 \alpha_2 x_1 x_3 x_2 \alpha_1^3 \alpha_3^8 \\
& -3096 \alpha_2^7 x_2^2 x_3 \alpha_1^4 - 306435 \alpha_2^4 x_2^2 x_3 \alpha_1^2 \alpha_3^6 - 2761365 \alpha_2^4 x_2^2 x_3 \alpha_1^5 \alpha_3^3 \\
& +504570 \alpha_2^6 x_2^2 x_3 \alpha_3^5 \alpha_1 + 61000 \alpha_2^2 x_2^2 x_3 \alpha_1^3 \alpha_3^7 - 10961250 \alpha_2^7 x_1 x_4 x_3 \alpha_3^2 \alpha_1^3 \\
& -5088050 \alpha_2^3 x_1 x_4 x_3 \alpha_1^6 \alpha_3^3 - 888670 \alpha_2^{10} x_2^2 x_3 \alpha_3^2 + 12327800 \alpha_2^9 x_1 x_4 x_3 \alpha_1^2 \alpha_3^2 \\
& +4696750 \alpha_2^3 x_1 x_4 x_3 \alpha_1^5 \alpha_3^4 + 79700 x_1 x_3^2 \alpha_2^8 \alpha_3^4 + 3394870 \alpha_2^9 x_1 x_3 x_2 \alpha_1^2 \alpha_3^2 \\
& +573260 \alpha_2^5 x_1 x_3 x_2 \alpha_3^6 \alpha_1 - 446410 \alpha_2^3 x_1 x_3 x_2 \alpha_3^7 \alpha_1^2 + 49320 \alpha_2^3 x_1 x_3 x_2 \alpha_3^8 \alpha_1 \\
& +8640 \alpha_2^5 x_1 x_3 x_2 \alpha_1^7 + 116400 \alpha_2^7 x_1 x_3 x_2 \alpha_1^5 - 118110 \alpha_2^9 x_4^3 \alpha_1^2
\end{aligned}$$

$$\begin{aligned}
& + 8640 \alpha_2 x_1 x_3 x_2 \alpha_1^9 \alpha_3^2 - 1650200 \alpha_2^{11} x_1 x_3 x_2 \alpha_1 - 144480 \alpha_2 x_1 x_3 x_2 \alpha_1^8 \alpha_3^3 \\
& - 4623600 \alpha_2^7 x_1 x_3 x_2 \alpha_3^3 \alpha_1^2 - 24840 \alpha_2^5 x_1 x_3 x_2 \alpha_3^7 - 6083090 \alpha_2^5 x_1 x_3 x_2 \alpha_1^4 \alpha_3^3 \\
& - 461890 \alpha_2^{10} x_1^2 x_3 \alpha_3^2 - 390240 \alpha_2^5 x_1 x_3 x_2 \alpha_1^6 \alpha_3 + 117480 \alpha_2^8 x_1^2 x_3 \alpha_3^4 \\
& + 6958990 \alpha_2^5 x_1 x_3 x_2 \alpha_1^3 \alpha_3^4 + 208200 \alpha_2^7 x_2 x_3^2 \alpha_1^5 + 10800 \alpha_2^5 x_2 x_3^2 \alpha_1^7 \\
& - 3135270 \alpha_2^5 x_1 x_3 x_2 \alpha_3^5 \alpha_1^2 + 1970200 \alpha_2^3 x_1 x_3 x_2 \alpha_3^6 \alpha_1^3 \\
& + 418320 \alpha_2^3 x_1 x_3 x_2 \alpha_1^7 \alpha_3^2 - 506720 \alpha_2 x_1 x_3 x_2 \alpha_1^4 \alpha_3^7 - 68400 \alpha_2^7 x_2 x_3^2 \alpha_3^5 \\
& + 2455220 \alpha_2^7 x_1 x_3 x_2 \alpha_3^4 \alpha_1 - 1348990 \alpha_2^{10} x_1^2 x_3 \alpha_1^2 + 1669590 \alpha_2^9 x_1 x_3 x_2 \alpha_3^2 \alpha_1^2 \\
& - 238290 \alpha_2^7 x_1 x_3 x_2 \alpha_3^5 - 1620710 \alpha_2^7 x_1 x_3 x_2 \alpha_1^4 \alpha_3 - 1527000 \alpha_2^{11} x_2 x_3^2 \alpha_1 \\
& - 1452320 \alpha_2 x_1 x_3 x_2 \alpha_1^6 \alpha_3^5 + 35585 \alpha_2^6 x_1^2 x_3 \alpha_3^6 - 22812 \alpha_2^2 x_4 x_3 x_2 \alpha_3^8 \alpha_1 \\
& - 1582000 \alpha_2^{11} x_2 x_3^2 \alpha_3 - 4867740 \alpha_2^3 x_1 x_3 x_2 \alpha_1^4 \alpha_3^5 - 16920 \alpha_2^5 x_2 x_4^2 \alpha_1^5 \alpha_3 \\
& - 56250 x_1^3 \alpha_1^6 \alpha_3^6 - 337050 \alpha_2^7 x_2 x_4^2 \alpha_1 \alpha_3^3 - 169534 \alpha_2^7 x_2 x_4^2 \alpha_1^3 \alpha_3 \\
& - 3750 x_1^3 \alpha_1^8 \alpha_3^4 - 605665 \alpha_2^4 x_1^2 x_3 \alpha_1^6 \alpha_3^2 + 6912 \alpha_2^3 x_2 x_4^2 \alpha_1^6 \alpha_3^2 \\
& - 4830 x_1^3 \alpha_2^4 \alpha_3^8 - 18750 x_1 x_3^2 \alpha_1^7 \alpha_3^4 - 2340 \alpha_2^2 x_1^2 x_3 \alpha_3^9 \alpha_1 \\
& + 645785 \alpha_2^6 x_1^2 x_3 \alpha_1^5 \alpha_3 + 8333120 \alpha_2^{10} x_1^2 x_3 \alpha_1 \alpha_3 + 1455250 \alpha_2^2 x_1^2 x_3 \alpha_1^5 \alpha_3^5 \\
& + 15392920 \alpha_2^6 x_1^2 x_3 \alpha_1^3 \alpha_3^3 - 7456425 \alpha_2^4 x_1^2 x_3 \alpha_1^4 \alpha_3^4 + 16685 \alpha_2^2 x_1^2 x_3 \alpha_1^2 \alpha_3^8 \\
& - 16015865 \alpha_2^8 x_1^2 x_3 \alpha_1^2 \alpha_3^2 + 108180 x_1 x_3^2 \alpha_1^2 \alpha_3^9 - 10440 \alpha_2^2 x_1^2 x_3 \alpha_1^8 \alpha_3^2 \\
& - 52270 \alpha_2^4 x_1^2 x_3 \alpha_3^7 \alpha_1 - 281250 x_1 x_3^2 \alpha_1^5 \alpha_3^6 + 188515 \alpha_2^2 x_1^2 x_3 \alpha_1^7 \alpha_3^3 \\
& + 22320 \alpha_2^4 x_1^2 x_3 \alpha_1^7 \alpha_3 - 1709000 \alpha_2^{12} x_1^2 x_3 + 5208 x_1 x_3^2 \alpha_2^8 \alpha_1^3 \\
& + 606948 x_1 x_3^2 \alpha_2^8 \alpha_3^3 + 5059825 \alpha_2^8 x_1^2 x_3 \alpha_1^3 \alpha_3 - 7053355 \alpha_2^6 x_1^2 x_3 \alpha_1^4 \alpha_3^2 \\
& - 281250 x_1 x_3^2 \alpha_1^3 \alpha_3^8 + 2299155 \alpha_2^8 x_1^2 x_3 \alpha_1 \alpha_3^3 - 3780070 \alpha_2^6 x_1^2 x_3 \alpha_1^2 \alpha_3^4 \\
& + 1219000 \alpha_2^{11} x_4^3 - 655630 \alpha_2^2 x_1^2 x_3 \alpha_1^4 \alpha_3^6 - 715975 x_1 x_3^2 \alpha_2^8 \alpha_1^4 \\
& - 3600 x_1 x_3^2 \alpha_2^6 \alpha_3^6 + 2598435 \alpha_2^4 x_1^2 x_3 \alpha_1^3 \alpha_3^5 - 1004615 \alpha_2^2 x_1^2 x_3 \alpha_1^6 \alpha_3^4 \\
& - 228635 \alpha_2^8 x_1^2 x_3 \alpha_1^4 + 34370 \alpha_2^4 x_1^2 x_3 \alpha_1^2 \alpha_3^6 + 4347135 \alpha_2^4 x_1^2 x_3 \alpha_1^5 \alpha_3^3 \\
& - 164425 \alpha_2^6 x_1^2 x_3 \alpha_3^5 \alpha_1 + 12575 \alpha_2^2 x_1^2 x_3 \alpha_1^3 \alpha_3^7 + 457780 \alpha_2^7 x_1 x_3 x_2 \alpha_3^2 \alpha_1^3 \\
& + 5332960 \alpha_2^3 x_1 x_3 x_2 \alpha_1^5 \alpha_3^4 - 2669770 \alpha_2^3 x_1 x_3 x_2 \alpha_1^6 \alpha_3^3 + 638800 x_1 x_3 \alpha_2^2 \alpha_3^{10} \\
& - 4149375 \alpha_2^4 x_1 x_4^2 \alpha_1^5 \alpha_3^3 + 180275 \alpha_2^4 x_1 x_4^2 \alpha_1^3 \alpha_3^5 + 32400 \alpha_2^2 x_1 x_4^2 \alpha_1^3 \alpha_3^7 \\
& - 123300 \alpha_2^4 x_1 x_4^2 \alpha_1^2 \alpha_3^6 - 864 \alpha_2^2 x_1 x_4^2 \alpha_1^7 \alpha_3^2 + 150300 \alpha_2^6 x_1 x_4^2 \alpha_3^5 \alpha_1 \\
& - 214200 \alpha_2^5 x_2 x_4^2 \alpha_1^2 \alpha_3^5 - 129480 \alpha_2^2 x_1 x_4 x_2 \alpha_1^3 \alpha_3^7 + 196356 x_1 x_3^2 \alpha_2^4 \alpha_3^7
\end{aligned}$$

$$\begin{aligned}
& + 148650 \alpha_2^5 x_2 x_4^2 \alpha_1^6 \alpha_3 + 1851250 \alpha_2^9 x_2 x_4^2 \alpha_3^2 \alpha_1 + 96300 \alpha_2^3 x_2 x_4^2 \alpha_3^6 \alpha_1^3 \\
& + 13056975 \alpha_2^7 x_2 x_4^2 \alpha_1^3 \alpha_3^2 + 10766 \alpha_2^7 x_2^3 \alpha_3^5 - 7958650 \alpha_2^5 x_2 x_4^2 \alpha_1^4 \alpha_3^3 \\
& + 7200 \alpha_2^{11} x_2^3 \alpha_1 + 31200 x_1 x_3^2 \alpha_2^{10} \alpha_1 + 1080 x_1 x_3^2 \alpha_1^8 \alpha_3^3 \\
& + 35025 \alpha_2^7 x_2 x_4^2 \alpha_1^4 \alpha_3 + 508810 \alpha_2^4 x_1 x_4 x_2 \alpha_1^2 \alpha_3^6 + 1810775 \alpha_2^3 x_2 x_4^2 \alpha_1^5 \alpha_3^4 \\
& - 9454100 \alpha_2^9 x_2 x_4^2 \alpha_1^2 \alpha_3 + 3126600 \alpha_2^5 x_2 x_4^2 \alpha_1^3 \alpha_3^4 - 77275 \alpha_2^3 x_2 x_4^2 \alpha_1^6 \alpha_3^3 \\
& + 2700 \alpha_2^3 x_2 x_4^2 \alpha_1^8 \alpha_3 + 142200 \alpha_2^7 x_2 x_4^2 \alpha_3 \alpha_1 - 900925 \alpha_2^3 x_2 x_4^2 \alpha_1^4 \alpha_3^5 \\
& - 3806925 \alpha_2^7 x_2 x_4^2 \alpha_3^3 \alpha_1^2 + 746960 \alpha_2 x_1 x_3 x_2 \alpha_1^7 \alpha_3^4 + 381480 x_1 x_3^2 \alpha_1^4 \alpha_3^7 \\
& + 108180 x_1 x_3^2 \alpha_1^6 \alpha_3^5 + 11766 \alpha_2^3 x_2 x_4^2 \alpha_1 \alpha_3^7 + 19876 \alpha_2^9 x_2^3 \alpha_3^3 \\
& - 272900 \alpha_2^5 x_2 x_4^2 \alpha_1^3 \alpha_3^3 + 113600 \alpha_2^{11} x_2 x_4^2 - 396248 \alpha_2^9 x_2 x_4^2 \alpha_1 \alpha_3 \\
& + 469938 \alpha_2^7 x_2 x_4^2 \alpha_1^2 \alpha_3^2 - 75200 \alpha_2^{12} x_1 x_2^2 + 69410 \alpha_2^3 x_2 x_4^2 \alpha_1^4 \alpha_3^4 \\
& - 360 x_1^3 \alpha_1^6 \alpha_2^6 + 67652 \alpha_2^5 x_2 x_4^2 \alpha_3^5 \alpha_1 - 67575 \alpha_2^3 x_2 x_4^2 \alpha_1^7 \alpha_3^2 \\
& + 359160 \alpha_2^5 x_2 x_4^2 \alpha_1^2 \alpha_3^4 - 69850 \alpha_2^7 x_2 x_4^2 \alpha_3^4 - 14002 \alpha_2^3 x_2 x_4^2 \alpha_1^2 \alpha_3^6 \\
& + 216 x_1^3 \alpha_1^9 \alpha_3^3 + 125318 \alpha_2^5 x_2 x_4^2 \alpha_1^4 \alpha_3^2 - 6224 x_1^3 \alpha_2^8 \alpha_1^4 \\
& - 142800 x_1 x_3^2 \alpha_2^{10} \alpha_3 - 113446 \alpha_2^3 x_2 x_4^2 \alpha_1^3 \alpha_3^5 - 28680 \alpha_2^3 x_2 x_4^2 \alpha_1^5 \alpha_3^3 \\
& - 18750 x_1 x_3^2 \alpha_3^{10} \alpha_1 + 83915 \alpha_2^5 x_4^3 \alpha_1^5 \alpha_3 - 53740 \alpha_2^5 x_2 x_4^2 \alpha_3^6 \alpha_1 \\
& - 643940 \alpha_2^6 x_1 x_4 x_2 \alpha_3^5 \alpha_1 - 295260 \alpha_2^3 x_2 x_4^2 \alpha_1^6 \alpha_3^3 + 643700 \alpha_2^3 x_2 x_4^2 \alpha_1^5 \alpha_3^4 \\
& + 735775 \alpha_2^9 x_2^3 \alpha_1^4 - 375270 \alpha_2^7 x_2 x_4^2 \alpha_3^4 \alpha_1 + 895305 \alpha_2^5 x_2 x_4^2 \alpha_1^3 \alpha_3^4 \\
& + 15080 \alpha_2^3 x_2 x_4^2 \alpha_3^7 \alpha_1^2 + 38660 \alpha_2^7 x_2 x_4^2 \alpha_3^5 - 710730 \alpha_2^7 x_2 x_4^2 \alpha_3^3 \alpha_1^2 \\
& + 1532700 \alpha_2^{11} x_2^2 x_4 \alpha_1 + 62210 \alpha_2^5 x_4^3 \alpha_1^4 \alpha_3^2 + 478540 \alpha_2^3 x_4^3 \alpha_1^4 \alpha_3^4 \\
& - 1440 \alpha_2^4 x_3 x_4^2 \alpha_1^7 - 36740 \alpha_2^3 x_2 x_4^2 \alpha_3^6 \alpha_1^3 - 297260 \alpha_2^3 x_2 x_4^2 \alpha_1^4 \alpha_3^5 \\
& - 1660000 \alpha_2^6 x_1 x_4^2 \alpha_3^4 \alpha_1 + 1252640 \alpha_2^4 x_1 x_4^2 \alpha_1^2 \alpha_3^5 + 2304 \alpha_2^4 x_1 x_4^2 \alpha_1^6 \alpha_3 \\
& - 2651568 \alpha_2^8 x_1 x_4^2 \alpha_3^2 \alpha_1 - 704784 \alpha_2^6 x_1 x_4^2 \alpha_1^3 \alpha_3^2 - 47656 \alpha_2^4 x_1 x_4^2 \alpha_1^5 \alpha_3^2 \\
& + 459514 \alpha_2^4 x_1 x_4^2 \alpha_1^4 \alpha_3^3 + 34940 \alpha_2^6 x_3 x_4^2 \alpha_1^5 + 45776 \alpha_2^6 x_1 x_4^2 \alpha_1^4 \alpha_3^4 \\
& - 20910 \alpha_2^2 x_1 x_4^2 \alpha_3^8 \alpha_1 + 3744500 \alpha_2^{10} x_3 x_4^2 \alpha_1 + 764125 \alpha_2^8 x_3 x_4^2 \alpha_1^3 \\
& + 415692 \alpha_2^8 x_1 x_4^2 \alpha_1^2 \alpha_3^2 - 324744 \alpha_2^4 x_1 x_4^2 \alpha_3^2 \alpha_1^6 - 103302 \alpha_2^2 x_1 x_4^2 \alpha_1^5 \alpha_3^4 \\
& + 38700 \alpha_2^7 x_2^3 \alpha_1^6 - 1563752 \alpha_2^4 x_1 x_4^2 \alpha_1^3 \alpha_3^4 + 15816 \alpha_2^2 x_1 x_4^2 \alpha_1^6 \alpha_3^3 \\
& + 504 \alpha_2^5 x_2^3 \alpha_3^7 - 2120500 \alpha_2^{10} x_3 x_4^2 \alpha_3 + 3709425 \alpha_2^4 x_1 x_4^2 \alpha_1^4 \alpha_3^4 \\
& - 13500 \alpha_2^4 x_3 x_4^2 \alpha_3^7 + 119976 \alpha_2^2 x_1 x_4^2 \alpha_3^7 \alpha_1^2 - 178000 \alpha_2^{11} x_2^3 \alpha_3
\end{aligned}$$



$$\begin{aligned}
& + 216 x_1 x_3^2 \alpha_1^5 \alpha_2^6 + 3600 \alpha_2^2 x_1 x_4^2 \alpha_1^9 \alpha_3 + 313128 \alpha_2^2 x_1 x_4^2 \alpha_1^4 \alpha_3^5 \\
& + 3001032 \alpha_2^6 x_1 x_4^2 \alpha_3^3 \alpha_1^2 + 604182 x_1 x_3^2 \alpha_2^6 \alpha_3^5 + 313475 \alpha_2^4 x_1 x_4^2 \alpha_1^6 \alpha_3^2 \\
& - 324924 \alpha_2^2 x_1 x_4^2 \alpha_3^6 \alpha_1^3 - 1070000 \alpha_2^2 x_1 x_4^2 \alpha_1^5 \alpha_3^5 - 388450 \alpha_2^6 x_1 x_4^2 \alpha_1^5 \alpha_3 \\
& + 2630300 \alpha_2^{10} x_1 x_4^2 \alpha_1 \alpha_3 - 960000 \alpha_2^{12} x_1 x_4^2 + 6832650 \alpha_2^6 x_1 x_4^2 \alpha_1^4 \alpha_3^2 \\
& - 3471550 \alpha_2^6 x_1 x_4^2 \alpha_1^3 \alpha_3^3 + 27390 \alpha_2^4 x_1 x_4^2 \alpha_3^7 - 3100 \alpha_2^2 x_1 x_4^2 \alpha_1^8 \alpha_3^2 \\
& - 838175 \alpha_2^8 x_1 x_4^2 \alpha_1^2 \alpha_3^2 - 66000 \alpha_2^2 x_1 x_4^2 \alpha_1^7 \alpha_3^3 + 25100 \alpha_2^4 x_1 x_4^2 \alpha_1^7 \alpha_3 \\
& - 5144175 \alpha_2^8 x_1 x_4^2 \alpha_1^3 \alpha_3 - 1160350 \alpha_2^6 x_1 x_4^2 \alpha_1^2 \alpha_3^4 + 1347575 \alpha_2^8 x_1 x_4^2 \alpha_1^2 \alpha_3^3 \\
& + 111900 \alpha_2^5 x_2 x_4^2 \alpha_1^5 \alpha_3^2 + 993000 \alpha_2^2 x_1 x_4^2 \alpha_1^6 \alpha_3^4 + 648 \alpha_2^9 x_2^3 \alpha_1^3 \\
& + 110100 \alpha_2^2 x_1 x_4^2 \alpha_1^4 \alpha_3^6 + 15364830 \alpha_2^8 x_1 x_4 x_2^2 \alpha_1^2 \alpha_3^2 \\
& - 43560 \alpha_2^4 x_1 x_4 x_2^7 \alpha_1 + 21600 \alpha_2^2 x_1 x_4 x_2^2 \alpha_1^8 \alpha_3 + 1509650 \alpha_2^5 x_4^3 \alpha_1^2 \alpha_3^4 \\
& + 793920 \alpha_2^2 x_1 x_4 x_2^6 \alpha_1^4 \alpha_3^4 - 30700 \alpha_2^3 x_4^3 \alpha_1^5 \alpha_3^3 + 46100 \alpha_2^7 x_4^3 \alpha_1^3 \alpha_3^3 \\
& - 438820 \alpha_2^3 x_4^3 \alpha_1^3 \alpha_3^5 + 95180 \alpha_2^3 x_4^3 \alpha_1^2 \alpha_3^6 - 9360 \alpha_2^3 x_4^3 \alpha_1^7 \alpha_3^7 \\
& - 73440 \alpha_2^4 x_1 x_4 x_2^7 \alpha_1^7 \alpha_3 + 21960 \alpha_2^6 x_1 x_4 x_2^6 \alpha_3^6 + 7605640 \alpha_2^6 x_1 x_4 x_2^4 \alpha_1^2 \alpha_3^2 \\
& - 270280 \alpha_2^2 x_1 x_4 x_2^7 \alpha_1^3 \alpha_3^3 - 27160 \alpha_2^3 x_4^3 \alpha_1^6 \alpha_3^2 - 6514010 \alpha_2^8 x_1 x_4 x_2^8 \alpha_1^3 \alpha_3^3 \\
& + 2630000 \alpha_2^{12} x_1 x_4 x_2 + 4905600 \alpha_2^6 x_1 x_4 x_2^2 \alpha_1^4 \alpha_3^4 + 516520 \alpha_2^8 x_1 x_4 x_2^4 \alpha_1^4 \\
& - 4192030 \alpha_2^8 x_1 x_4 x_2^3 \alpha_1^3 \alpha_3^3 + 144400 \alpha_2^{11} x_2^3 \alpha_3^2 + 42480 \alpha_2^3 x_2^2 x_4^7 \alpha_1^2 \alpha_3^2 \\
& + 538240 \alpha_2^2 x_1 x_4 x_2^4 \alpha_1^6 \alpha_3^6 + 43200 \alpha_2^6 x_1 x_4 x_2^6 \alpha_1^6 - 2613510 \alpha_2^4 x_1 x_4 x_2^3 \alpha_1^5 \alpha_3^5 \\
& + 2115900 \alpha_2^{10} x_1 x_4 x_2^2 \alpha_1^2 - 4001450 \alpha_2^4 x_1 x_4 x_2^5 \alpha_1^3 \alpha_3^3 + 264610 \alpha_2^8 x_1 x_4 x_2^4 \alpha_3^4 \\
& + 425560 \alpha_2^2 x_1 x_4 \alpha_1^5 \alpha_3^6 + 5077050 \alpha_2^7 x_4^3 \alpha_1^2 \alpha_3^2 + 1361700 \alpha_2^{10} x_1 x_4 x_2^2 \alpha_3^2 \\
& - 196015 \alpha_2^9 x_2^2 x_4^2 \alpha_1^2 \alpha_3 + 205395 \alpha_2^5 x_2^2 x_4^2 \alpha_1^2 \alpha_3^5 + 10500 \alpha_2^9 x_2^3 \alpha_3^4 \\
& + 1071795 \alpha_2^5 x_2^2 x_4^5 \alpha_1^2 \alpha_3^2 - 94140 \alpha_2^5 x_2^2 x_4^6 \alpha_1^6 \alpha_3 - 3096775 \alpha_2^5 x_2^2 x_4^4 \alpha_1^4 \alpha_3^3 \\
& + 5688950 \alpha_2^7 x_2^2 x_4^3 \alpha_1^2 \alpha_3^2 - 624475 \alpha_2^9 x_1 x_4^3 \alpha_3^3 - 2880 \alpha_2^3 x_2^2 x_4^8 \alpha_3^8 \alpha_1 \\
& + 3275900 \alpha_2^{11} x_2^3 \alpha_1^2 - 4768575 \alpha_2^9 x_2^2 x_4^2 \alpha_1^2 \alpha_3 - 1306590 \alpha_2^7 x_2^2 x_4^4 \alpha_1^4 \alpha_3^4 \\
& - 933235 \alpha_2^7 x_1 x_4^4 \alpha_1^4 \alpha_3^4 + 126740 \alpha_2^2 x_1 x_4^7 \alpha_1^4 \alpha_3^4 - 350920 \alpha_2^2 x_1 x_4^6 \alpha_1^5 \alpha_3^5 \\
& - 2731270 \alpha_2^3 x_1 x_4^4 \alpha_1^4 \alpha_3^5 + 30240 \alpha_2^2 x_1 x_4 x_2^8 \alpha_1^2 \alpha_3^2 + 720 \alpha_2^2 x_1 x_4^2 \alpha_1^2 \alpha_3^9 \\
& - 2880 \alpha_2^3 x_1 x_4^8 \alpha_1^8 \alpha_3 - 477600 \alpha_2^{10} x_1 x_4^2 \alpha_3^2 + 991920 \alpha_2^4 x_1 x_4 x_2^6 \alpha_1^2 \alpha_3^2 \\
& + 38980 \alpha_2^2 x_1 x_4^3 \alpha_1^8 \alpha_3^8 - 2700 \alpha_2^5 x_2 x_4^2 \alpha_1^7 - 81075 \alpha_2^7 x_2 x_4^2 \alpha_1^5 \\
& - 1238160 \alpha_2^6 x_1 x_4 x_2^5 \alpha_1^5 \alpha_3 - 24300 \alpha_2^9 x_2 x_4^2 \alpha_3^3 + 2545000 \alpha_2^{11} x_2 x_4^2 \alpha_1^2
\end{aligned}$$

$$\begin{aligned}
& -69650 \alpha_2^9 x_2 x_4^2 \alpha_1^3 - 270000 \alpha_2^{11} x_2 x_4^2 \alpha_3 - 1080 \alpha_2^3 x_2 x_4^2 \alpha_3^8 \\
& - 18246 \alpha_2^5 x_2 x_4^2 \alpha_3^6 + 69736 \alpha_2^9 x_2 x_4^2 \alpha_3^2 + 66416 \alpha_2^9 x_2 x_4^2 \alpha_1^2 \\
& + 8928 \alpha_2^7 x_2 x_4^2 \alpha_1^4 + 1440 \alpha_2^3 x_4^3 \alpha_1^7 \alpha_3 - 2596570 \alpha_2^5 x_4^3 \alpha_1^3 \alpha_3^3 \\
& - 9810400 \alpha_2^{10} x_1 x_4 x_2 \alpha_1 \alpha_3 - 984240 \alpha_2^2 x_1 x_4 x_2 \alpha_1^5 \alpha_3^5 \\
& + 5469310 \alpha_2^4 x_1 x_4 x_2 \alpha_1^4 \alpha_3^4 - 12669500 \alpha_2^6 x_1 x_4 x_2 \alpha_1^3 \alpha_3^3 \\
& - 4232020 \alpha_2^9 x_4^3 \alpha_1 \alpha_3 + 32254 \alpha_2^2 x_1 x_2^2 \alpha_1^6 \alpha_3^4 - 300330 \alpha_2^8 x_1 x_2^2 \alpha_1 \alpha_3^3 \\
& - 262658 \alpha_2^4 x_1 x_2^2 \alpha_1^3 \alpha_3^5 + 60012 \alpha_2^2 x_1 x_2^2 \alpha_1^4 \alpha_3^6 - 3384 \alpha_2^8 x_1 x_2^2 \alpha_1^4 \\
& + 1467900 \alpha_2^{10} x_1 x_4^2 \alpha_1^2 - 65946 \alpha_2^4 x_1 x_2^2 \alpha_1^5 \alpha_3^3 - 646925 \alpha_2^3 x_1^2 x_4 \alpha_1^6 \alpha_3^3 \\
& + 207124 \alpha_2^6 x_1 x_2^2 \alpha_3^5 \alpha_1 + 43976 \alpha_2^2 x_1 x_2^2 \alpha_1^3 \alpha_3^7 + 6444410 \alpha_2^7 x_1^2 x_4 \alpha_3^2 \alpha_1^3 \\
& + 2247200 \alpha_2^3 x_1^2 x_4 \alpha_1^5 \alpha_3^4 + 1195495 \alpha_2^5 x_1^2 x_4 \alpha_1^5 \alpha_3^2 - 3638125 \alpha_2^9 x_1^2 x_4 \alpha_1^2 \alpha_3^2 \\
& + 900 \alpha_2^3 x_1^2 x_4 \alpha_3^8 \alpha_1 + 168850 \alpha_2^5 x_1^2 x_4 \alpha_3^6 \alpha_1 + 720 \alpha_2^2 x_1^2 x_4 \alpha_1^9 \alpha_3^2 \\
& - 133445 \alpha_2^3 x_1^2 x_4 \alpha_3^7 \alpha_1^2 - 16780 \alpha_2^2 x_1^2 x_4 \alpha_1^8 \alpha_3^3 - 5471865 \alpha_2^5 x_1^2 x_4 \alpha_1^4 \alpha_3^3 \\
& - 8953200 \alpha_2^7 x_1^2 x_4 \alpha_3^3 \alpha_1^2 + 7016135 \alpha_2^5 x_1^2 x_4 \alpha_1^3 \alpha_3^4 - 75860 \alpha_2^5 x_1^2 x_4 \alpha_1^6 \alpha_3^2 \\
& + 1180280 \alpha_2^3 x_1^2 x_4 \alpha_3^6 \alpha_1^3 - 2252015 \alpha_2^5 x_1^2 x_4 \alpha_3^5 \alpha_1^2 + 63100 \alpha_2^3 x_1^2 x_4 \alpha_1^7 \alpha_3^2 \\
& - 225020 \alpha_2^2 x_1^2 x_4 \alpha_1^4 \alpha_3^7 + 5743475 \alpha_2^9 x_1^2 x_4 \alpha_3^2 \alpha_1 + 1921230 \alpha_2^7 x_1^2 x_4 \alpha_3^4 \alpha_1 \\
& + 640000 \alpha_2^{13} x_2^3 - 59400 \alpha_2^8 x_1 x_4^2 \alpha_3^4 + 22500 \alpha_2^2 x_1 x_2^2 \alpha_1^4 \alpha_3^7 \\
& + 3655800 \alpha_2^4 x_1 x_2^2 \alpha_1^7 \alpha_3^2 + 3049750 \alpha_2^{10} x_1 x_2^2 \alpha_3^2 \alpha_1 + 457500 \alpha_2^8 x_1 x_2^2 \alpha_3^4 \alpha_1 \\
& - 22640250 \alpha_2^8 x_1 x_2^2 \alpha_1^4 \alpha_3^4 + 21636 x_1^3 \alpha_1^7 \alpha_3^5 - 3642600 \alpha_2^2 x_1 x_2^2 \alpha_1^6 \alpha_3^5 \\
& + 4057800 \alpha_2^2 x_1 x_2^2 \alpha_1^7 \alpha_3^4 + 30336450 \alpha_2^6 x_1 x_2^2 \alpha_1^5 \alpha_3^2 \\
& - 2594950 \alpha_2^4 x_1 x_2^2 \alpha_1^4 \alpha_3^5 - 60640 \alpha_2^{10} x_1 x_4^2 \alpha_1 + 220968 \alpha_2^6 x_1 x_4^2 \alpha_3^5 \\
& - 12856 \alpha_2^8 x_1 x_4^2 \alpha_1^3 + 917360 \alpha_2^{10} x_1 x_4^2 \alpha_3 + 1080 \alpha_2^2 x_1 x_4^2 \alpha_3^9 \\
& + 601200 \alpha_2^2 x_1 x_2^2 \alpha_1^5 \alpha_3^6 - 151200 \alpha_2^4 x_1 x_2^2 \alpha_1^8 \alpha_3 + 5112 \alpha_2^6 x_1 x_2^2 \alpha_1^5 \alpha_3^5 \\
& + 504 \alpha_2^4 x_1 x_2^2 \alpha_1^6 \alpha_3^2 - 22000 \alpha_2^6 x_1 x_4^2 \alpha_1^6 + 936 \alpha_2^2 x_1 x_2^2 \alpha_3^9 \alpha_1 \\
& + 5400 \alpha_2^2 x_1 x_2^2 \alpha_1^3 \alpha_3^8 + 140975 \alpha_2^8 x_1 x_4^2 \alpha_1^4 + 199816 \alpha_2^{10} x_1 x_2^2 \alpha_1 \alpha_3^2 \\
& - 116680 \alpha_2^2 x_1 x_2^2 \alpha_1^5 \alpha_3^5 - 392724 \alpha_2^6 x_1 x_2^2 \alpha_1^3 \alpha_3^3 + 395550 \alpha_2^4 x_1 x_2^2 \alpha_1^4 \alpha_3^4 \\
& - 18266 \alpha_2^2 x_1 x_2^2 \alpha_1^2 \alpha_3^8 - 10762 \alpha_2^8 x_1 x_2^2 \alpha_1^2 \alpha_3^2 - 2232 \alpha_2^2 x_1 x_2^2 \alpha_1^7 \alpha_3^3 \\
& + 40636 \alpha_2^4 x_1 x_2^2 \alpha_3^7 \alpha_1 + 60570 \alpha_2^8 x_1 x_2^2 \alpha_1^3 \alpha_3 + 3154 \alpha_2^6 x_1 x_2^2 \alpha_1^4 \alpha_3^2 \\
& - 166286 \alpha_2^4 x_1 x_2^2 \alpha_1^2 \alpha_3^6 - 194388 \alpha_2^9 x_1^2 x_2^2 \alpha_1^2 \alpha_3 + 516686 \alpha_2^3 x_1^2 x_2^2 \alpha_1^5 \alpha_3^4
\end{aligned}$$

$$\begin{aligned}
& -26172 \alpha_2^3 x_1^2 x_2 \alpha_3^8 \alpha_1 - 131314 \alpha_2^5 x_1^2 x_2 \alpha_3^6 \alpha_1 + 425928 \alpha_2^6 x_1 x_2^2 \alpha_1^2 \alpha_3^4 \\
& - 2433234 \alpha_2^7 x_1^2 x_2 \alpha_3^3 \alpha_1^2 + 114692 \alpha_2^3 x_1^2 x_2 \alpha_3^7 \alpha_1^2 - 19800 x_1^3 \alpha_1^2 \alpha_2^4 \alpha_3^7 \\
& + 206615 \alpha_2^9 x_2^2 x_4 \alpha_3^3 + 530055 \alpha_2^9 x_2^2 x_4 \alpha_1^3 + 308700 \alpha_2^{11} x_2^2 x_4 \alpha_3 \\
& + 2880 \alpha_2^5 x_2^2 x_4 \alpha_3^7 - 936 \alpha_2^5 x_1^2 x_2 \alpha_1^6 \alpha_3 - 854494 \alpha_2^5 x_1^2 x_2 \alpha_1^4 \alpha_3^3 \\
& + 1996984 \alpha_2^5 x_1^2 x_2 \alpha_1^3 \alpha_3^4 + 65000 x_1^3 \alpha_1 \alpha_2^{12} - 1440 \alpha_2^6 x_1 x_4^2 \alpha_1^5 \\
& - 445660 \alpha_2^5 x_1^2 x_2 \alpha_3^5 \alpha_1^2 + 203246 \alpha_2^3 x_1^2 x_2 \alpha_3^6 \alpha_1^3 - 59200 x_1^3 \alpha_2^{12} \\
& + 3240 \alpha_2^3 x_1^2 x_2 \alpha_1^7 \alpha_3^2 - 31252 \alpha_2 x_1^2 x_2 \alpha_1^4 \alpha_3^7 - 470475 x_1^3 \alpha_1^5 \alpha_2^8 \\
& + 1511960 \alpha_2^9 x_1^2 x_2 \alpha_3^2 \alpha_1 + 404430 \alpha_2^7 x_1^2 x_2 \alpha_3^4 \alpha_1 - 118558 \alpha_2 x_1^2 x_2 \alpha_1^6 \alpha_3^5 \\
& - 26870 \alpha_2^7 x_1^2 x_2 \alpha_1^4 \alpha_3 + 28918 \alpha_2 x_1^2 x_2 \alpha_1^7 \alpha_3^4 - 648 \alpha_2 x_1^2 x_2 \alpha_3^{10} \alpha_1 \\
& - 841346 \alpha_2^3 x_1^2 x_2 \alpha_1^4 \alpha_3^5 + 21636 x_1^3 \alpha_1^3 \alpha_3^9 + 11754 \alpha_2 x_1^2 x_2 \alpha_1^2 \alpha_3^9 \\
& + 84458 \alpha_2^5 x_1^2 x_2 \alpha_1^5 \alpha_3^2 - 33986 \alpha_2 x_1^2 x_2 \alpha_1^3 \alpha_3^8 + 145716 \alpha_2 x_1^2 x_2 \alpha_1^5 \alpha_3^6 \\
& + 1812600 \alpha_2 x_1^2 x_2 \alpha_1^8 \alpha_3^4 + 43300 \alpha_2^{11} x_1^2 x_2 \alpha_1 \alpha_3 + 1263600 \alpha_2 x_1^2 x_2 \alpha_1^6 \alpha_3^6 \\
& - 560000 \alpha_2^{13} x_1^2 x_2 + 10521575 \alpha_2^5 x_1^2 x_2 \alpha_1^4 \alpha_3^4 - 81046 x_1^3 \alpha_2^8 \alpha_3^4 \\
& + 10468425 \alpha_2^5 x_1^2 x_2 \alpha_1^6 \alpha_3^2 - 10371175 \alpha_2^7 x_1^2 x_2 \alpha_1^3 \alpha_3^3 \\
& + 32400 \alpha_2 x_1^2 x_2 \alpha_1^{10} \alpha_3^2 - 6772125 \alpha_2^7 x_1^2 x_2 \alpha_1^5 \alpha_3 - 64800 \alpha_2^3 x_1^2 x_2 \alpha_1^9 \alpha_3 \\
& - 463500 \alpha_2 x_1^2 x_2 \alpha_1^9 \alpha_3^3 + 5388175 \alpha_2^9 x_1^2 x_2 \alpha_1^3 \alpha_3 - 2529000 \alpha_2 x_1^2 x_2 \alpha_1^7 \alpha_3^5 \\
& + 1344675 \alpha_2^7 x_1^2 x_2 \alpha_1^4 \alpha_3^2 - 101192 x_1^3 \alpha_2^{10} \alpha_3^2 - 1527300 \alpha_2^5 x_1^2 x_2 \alpha_1^7 \alpha_3 \\
& + 1458900 \alpha_2^3 x_1^2 x_2 \alpha_1^8 \alpha_3^2 - 2550100 \alpha_2^{11} x_1^2 x_2 \alpha_1^2 - 207000 \alpha_2^5 x_1^2 x_2 \alpha_3^6 \alpha_1^2 \\
& - 31950 x_1^3 \alpha_2^6 \alpha_3^6 - 48600 \alpha_2 x_1^2 x_2 \alpha_1^4 \alpha_3^8 + 130500 \alpha_2^7 x_1^2 x_2 \alpha_3^5 \alpha_1 \\
& + 32400 \alpha_2^5 x_1^2 x_2 \alpha_1^8 + 159300 \alpha_2^3 x_1^2 x_2 \alpha_1^3 \alpha_3^7 + 210825 \alpha_2^9 x_1^2 x_2 \alpha_3^3 \alpha_1 \\
& + 531900 \alpha_2^7 x_1^2 x_2 \alpha_1^6 + 9528725 \alpha_2^3 x_1^2 x_2 \alpha_1^6 \alpha_3^4 + 76296 x_1^3 \alpha_1^5 \alpha_3^7 \\
& - 11182475 \alpha_2^5 x_1^2 x_2 \alpha_1^5 \alpha_3^3 - 574825 \alpha_2^5 x_1^2 x_2 \alpha_3^5 \alpha_1^3 - 67500 \alpha_2 x_1^2 x_2 \alpha_1^5 \alpha_3^7 \\
& + 1629475 \alpha_2^9 x_1^2 x_2 \alpha_1^4 + 332475 \alpha_2^3 x_1^2 x_2 \alpha_1^4 \alpha_3^6 - 130764 \alpha_2^9 x_1^2 x_2 \alpha_3^3 \\
& + 260625 \alpha_2^7 x_1^2 x_2 \alpha_3^4 \alpha_1^2 + 4703725 \alpha_2^9 x_1^2 x_2 \alpha_3^2 \alpha_1^2 - 7138375 \alpha_2^3 x_1^2 x_2 \alpha_1^7 \alpha_3^3 \\
& + 753884 \alpha_2^8 x_1 x_4^2 \alpha_3^3 + 28591800 \alpha_2^8 x_1 x_2^2 \alpha_3^2 \alpha_1^3 - 5601025 \alpha_2^3 x_1^2 x_2 \alpha_1^5 \alpha_3^5 \\
& + 16745600 \alpha_2^4 x_1 x_2^2 \alpha_1^5 \alpha_3^4 - 18087950 \alpha_2^4 x_1 x_2^2 \alpha_1^6 \alpha_3^3 + 34200 \alpha_2^6 x_1 x_2^2 \alpha_3^6 \alpha_1^6 \\
& - 13542200 \alpha_2^{10} x_1 x_2^2 \alpha_1^2 \alpha_3 + 75600 \alpha_2^2 x_1 x_2^2 \alpha_1^9 \alpha_3^2 - 25200 \alpha_2^4 x_1 x_2^2 \alpha_3^7 \alpha_1^2 \\
& - 1119900 \alpha_2^2 x_1 x_2^2 \alpha_1^8 \alpha_3^3 - 5230050 \alpha_2^8 x_1 x_2^2 \alpha_3^2 \alpha_1^2 - 56250 x_1^3 \alpha_1^4 \alpha_3^8
\end{aligned}$$

$$\begin{aligned}
& -30803600 \alpha_2^6 x_1 x_2^2 \alpha_1^4 \alpha_3^3 - 31632 x_1^3 \alpha_2^3 \alpha_1^{10} \alpha_3^2 + 4928050 \alpha_2^6 x_1 x_2^2 \alpha_1^3 \alpha_3^4 \\
& - 3951900 \alpha_2^6 x_1 x_2^2 \alpha_1^6 \alpha_3 - 370200 \alpha_2^6 x_1 x_2^2 \alpha_3^5 \alpha_1^2 + 64300 \alpha_2^4 x_1 x_2^2 \alpha_3^6 \alpha_1^3 \\
& + 769300 \alpha_2^{11} x_1^2 x_4 \alpha_1 - 1500700 \alpha_2^{11} x_1^2 x_4 \alpha_3 + 257925 \alpha_2^9 x_1^2 x_4 \alpha_1^3 \\
& + 51660 \alpha_2^7 x_2^2 x_4 \alpha_1^5 - 1944 \alpha_2^2 x_1^2 x_2 \alpha_1^8 \alpha_3^3 - 86194 \alpha_2^3 x_1^2 x_2 \alpha_1^6 \alpha_3^3 \\
& + 641634 \alpha_2^7 x_1^2 x_2 \alpha_3^2 \alpha_1^3 - 1620 \alpha_2^5 x_1^2 x_4 \alpha_3^7 - 17100 \alpha_2^7 x_2^3 \alpha_3^5 \alpha_1 \\
& + 29540 \alpha_2^7 x_1^2 x_4 \alpha_1^5 + 2160 \alpha_2^5 x_1^2 x_4 \alpha_1^7 - 74385 \alpha_2^7 x_1^2 x_4 \alpha_3^5 \\
& - 74325 \alpha_2^3 x_2^3 \alpha_1^4 \alpha_3^6 + 174875 \alpha_2^5 x_2^3 \alpha_1^3 \alpha_3^5 - 8386475 \alpha_2^5 x_2^3 \alpha_1^5 \alpha_3^3 \\
& + 2700 \alpha_2^5 x_2^3 \alpha_1^2 \alpha_3^6 + 3900 \alpha_2^3 x_2^3 \alpha_1^3 \alpha_3^7 - 262575 \alpha_2^9 x_2^3 \alpha_1^3 \alpha_3^3 \\
& + 1800125 \alpha_2^3 x_2^3 \alpha_1^6 \alpha_3^4 - 11338025 \alpha_2^9 x_2^3 \alpha_1^3 \alpha_3^3 + 17625 \alpha_2^7 x_2^3 \alpha_1^2 \alpha_3^4 \\
& + 1139375 \alpha_2^5 x_2^3 \alpha_1^4 \alpha_3^4 - 1789975 \alpha_2^7 x_2^3 \alpha_1^3 \alpha_3^3 + 2153125 \alpha_2^9 x_2^3 \alpha_1^2 \alpha_3^2 \\
& + 38700 \alpha_2^3 x_2^3 \alpha_1^8 \alpha_3^2 - 77400 \alpha_2^5 x_2^3 \alpha_1^7 \alpha_3 - 566575 \alpha_2^3 x_2^3 \alpha_1^7 \alpha_3^3 \\
& + 14648475 \alpha_2^7 x_2^3 \alpha_1^4 \alpha_3^2 - 1804700 \alpha_2^{11} x_2^3 \alpha_1^3 \alpha_3 + 1868925 \alpha_2^5 x_2^3 \alpha_1^6 \alpha_3^2 \\
& - 2038125 \alpha_2^7 x_2^3 \alpha_1^5 \alpha_3 - 337825 \alpha_2^3 x_2^3 \alpha_1^5 \alpha_3^5 + 573172 \alpha_2^5 x_2^3 \alpha_1^3 \alpha_3^4 \\
& - 32298 \alpha_2^7 x_2^3 \alpha_3^4 \alpha_1 + 8246 \alpha_2^3 x_2^3 \alpha_3^7 \alpha_1^2 - 941526 \alpha_2^7 x_2^3 \alpha_3^3 \alpha_1^2 \\
& - 129286 \alpha_2^3 x_2^3 \alpha_1^4 \alpha_3^5 + 2414 \alpha_2^3 x_2^3 \alpha_3^6 \alpha_1^3 + 56130 \alpha_2^3 x_2^3 \alpha_1^5 \alpha_3^4 \\
& - 6120 \alpha_2^3 x_2^3 \alpha_1^6 \alpha_3^3 - 6912 \alpha_2^7 x_2^3 \alpha_1^4 \alpha_3 - 84388 \alpha_2^9 x_2^3 \alpha_1^2 \alpha_3 \\
& - 19012 \alpha_2^5 x_2^3 \alpha_3^6 \alpha_1 + 205826 \alpha_2^7 x_2^3 \alpha_1^3 \alpha_3^2 - 184768 \alpha_2^5 x_2^3 \alpha_1^4 \alpha_3^3 \\
& - 504 \alpha_2^3 x_2^3 \alpha_3^8 \alpha_1 + 10008 \alpha_2^5 x_2^3 \alpha_1^2 \alpha_3^5 + 675640 \alpha_2^9 x_2^3 \alpha_3^2 \alpha_1 \\
& + 12384 \alpha_2^5 x_2^3 \alpha_1^5 \alpha_3^2 + 77048 \alpha_2^{10} x_1 x_2^2 \alpha_3^2 - 84814 \alpha_2^8 x_1 x_2^2 \alpha_3^4 \\
& - 30032 \alpha_2^{10} x_1 x_2^2 \alpha_1^2 + 6333950 \alpha_2^{10} x_1 x_2^2 \alpha_1^3 - 174100 \alpha_2^{10} x_1 x_2^2 \alpha_3^3 \\
& - 22370 \alpha_2^6 x_1 x_2^2 \alpha_3^6 + 2651000 \alpha_2^{12} x_1 x_2^2 \alpha_1 - 754000 \alpha_2^{12} x_1 x_2^2 \alpha_3 \\
& - 936 \alpha_2^4 x_1 x_2^2 \alpha_3^8 + 75600 \alpha_2^6 x_1 x_2^2 \alpha_1^7 - 14400 \alpha_2^8 x_1 x_2^2 \alpha_3^5 \\
& + 9120 \alpha_2^{11} x_1^2 x_2 \alpha_1 - 380080 \alpha_2^{11} x_1^2 x_2 \alpha_3 - 312 \alpha_2^9 x_1^2 x_2 \alpha_1^3 \\
& - 161600 \alpha_2^{11} x_1^2 x_2 \alpha_3^2 - 34200 \alpha_2^9 x_1^2 x_2 \alpha_3^4 + 648 \alpha_2^3 x_1^2 x_2 \alpha_3^9 \\
& + 1416000 \alpha_2^8 x_1 x_2^2 \alpha_1^5 + 50608 \alpha_2^7 x_1 x_2^2 \alpha_3^5 + 14418 \alpha_2^5 x_1 x_2^2 \alpha_3^7 \\
& - 600375 x_1^3 \alpha_1^2 \alpha_2^6 \alpha_3^5 - 2422050 x_1^3 \alpha_1^2 \alpha_2^8 \alpha_3^3 - 360 \alpha_2^7 x_1^2 x_2 \alpha_1^5 \\
& + 866950 x_1^3 \alpha_1 \alpha_2^{10} \alpha_3^2 + 299325 x_1^3 \alpha_1 \alpha_2^8 \alpha_3^4 + 15300 x_1^3 \alpha_1 \alpha_2^6 \alpha_3^6 \\
& + 404800 x_1^3 \alpha_1^2 \alpha_2^{10} \alpha_3 - 2404950 x_1^3 \alpha_1^3 \alpha_2^8 \alpha_3^2 - 140625 x_1^3 \alpha_1^4 \alpha_2^2 \alpha_3^7
\end{aligned}$$

$$\begin{aligned}
& -1394950 x_1^3 \alpha_1^4 \alpha_2^4 \alpha_3^5 + 6599550 x_1^3 \alpha_1^4 \alpha_2^8 \alpha_3 + 4056850 x_1^3 \alpha_1^4 \alpha_2^6 \alpha_3^3 \\
& - 27000 x_1^3 \alpha_1^9 \alpha_2^2 \alpha_3^2 + 364275 x_1^3 \alpha_1^8 \alpha_2^2 \alpha_3^3 + 54000 x_1^3 \alpha_1^8 \alpha_2^4 \alpha_3 \\
& + 487975 x_1^3 \alpha_1^3 \alpha_2^4 \alpha_3^6 + 2771650 x_1^3 \alpha_1^3 \alpha_2^6 \alpha_3^4 + 8100 x_1^3 \alpha_1^3 \alpha_2^2 \alpha_3^8 \\
& - 1199025 x_1^3 \alpha_1^7 \alpha_2^4 \alpha_3^2 - 1174500 x_1^3 \alpha_1^7 \alpha_2^2 \alpha_3^4 - 557898 x_1^3 \alpha_1^8 \alpha_2^2 \alpha_3^2 \\
& + 17186 x_1^3 \alpha_1^7 \alpha_3^3 \alpha_2^2 + 292008 x_1^3 \alpha_1^5 \alpha_3^5 \alpha_2^2 - 8798250 x_1^3 \alpha_1^5 \alpha_2^6 \alpha_3^2 \\
& - 2843050 x_1^3 \alpha_1^5 \alpha_2^4 \alpha_3^4 + 248400 x_1^3 \alpha_1^5 \alpha_2^2 \alpha_3^6 - 370796 x_1^3 \alpha_1^4 \alpha_3^6 \alpha_2^2 \\
& - 768456 x_1^3 \alpha_2^6 \alpha_3^4 \alpha_1^2 + 284218 x_1^3 \alpha_2^6 \alpha_3^5 \alpha_1 + 83088 x_1^3 \alpha_2^4 \alpha_3^7 \alpha_1 \\
& - 385148 x_1^3 \alpha_2^4 \alpha_3^6 \alpha_1^2 + 424934 x_1^3 \alpha_2^8 \alpha_3^3 \alpha_1 + 238226 x_1^3 \alpha_1^3 \alpha_3^7 \alpha_2^2 \\
& - 72774 x_1^3 \alpha_1^2 \alpha_3^8 \alpha_2^2 - 111422 x_1^3 \alpha_1^6 \alpha_3^4 \alpha_2^2 + 229210 x_1^3 \alpha_1^5 \alpha_3^3 \alpha_2^4 \\
& + 739214 x_1^3 \alpha_2^4 \alpha_3^5 \alpha_1^3 - 635716 x_1^3 \alpha_2^4 \alpha_1^4 \alpha_3^4 + 761080 x_1^3 \alpha_2^6 \alpha_1^3 \alpha_3^3 \\
& - 29058 x_1^3 \alpha_2^4 \alpha_1^6 \alpha_3^2 + 21846 x_1^3 \alpha_2^6 \alpha_1^5 \alpha_3 + 133098 x_1^3 \alpha_2^8 \alpha_1^3 \alpha_3 \\
& - 240890 x_1^3 \alpha_2^6 \alpha_1^4 \alpha_3^2 - 792 x_1^3 \alpha_1^8 \alpha_3^2 \alpha_2^2 + 936 x_1^3 \alpha_1^7 \alpha_2^4 \alpha_3 \\
& + 8580 x_1^3 \alpha_2^2 \alpha_3^9 \alpha_1 + 255976 x_1^3 \alpha_2^{10} \alpha_1 \alpha_3 + 1305225 x_1^3 \alpha_1^6 \alpha_2^6 \alpha_3 \\
& + 5231650 x_1^3 \alpha_1^6 \alpha_2^4 \alpha_3^3 + 721350 x_1^3 \alpha_1^6 \alpha_2^2 \alpha_3^5) / ( \\
& (4 \alpha_1^2 - 17 \alpha_1 \alpha_3 + 4 \alpha_3^2 + 25 \alpha_2^2)(9 \alpha_1^6 - 118 \alpha_1^5 \alpha_3 + 391 \alpha_1^4 \alpha_3^2 + 172 \alpha_2^2 \alpha_1^4 \\
& - 1200 \alpha_2^2 \alpha_1^3 \alpha_3 - 564 \alpha_1^3 \alpha_3^3 + 391 \alpha_1^2 \alpha_3^4 + 944 \alpha_2^4 \alpha_1^2 + 2056 \alpha_2^2 \alpha_1^2 \alpha_3^2 \\
& - 1200 \alpha_2^2 \alpha_1 \alpha_3^3 - 2912 \alpha_2^4 \alpha_1 \alpha_3 - 118 \alpha_1 \alpha_3^5 + 9 \alpha_3^6 + 1600 \alpha_2^6 + 944 \alpha_2^4 \alpha_3^2 \\
& + 172 \alpha_2^2 \alpha_3^4)(\alpha_1^2 \alpha_3^2 - 2 \alpha_2^2 \alpha_1 \alpha_3 + \alpha_2^4)(-\alpha_2^2 + \alpha_1 \alpha_3)), -\frac{1}{96} \beta^2 ( \\
& -593700 \alpha_2^3 x_3^6 \alpha_1^4 \alpha_3 + 2109000 \alpha_2^{11} x_3^3 + 2232245 \alpha_2^3 x_3^3 \alpha_1^5 \alpha_3^3 \\
& + 4013230 \alpha_2^3 x_3^3 \alpha_1^3 \alpha_3^5 - 1141560 \alpha_2^3 x_3^3 \alpha_1^4 \alpha_3^6 + 1050640 \alpha_2^5 x_3^3 \alpha_3^5 \alpha_1 \\
& + 485340 \alpha_2^3 x_3^3 \alpha_1^3 \alpha_3^7 - 1346720 \alpha_2^3 x_3^3 \alpha_1^2 \alpha_3^6 - 1216700 x_3^2 x_2 \alpha_2^{10} \alpha_1 \alpha_3 \\
& - 548032 x_3^2 x_2 \alpha_2^6 \alpha_3^4 \alpha_1 - 1317656 x_3^2 x_2 \alpha_2^4 \alpha_1^3 \alpha_3^4 + 4032 x_3^2 x_2 \alpha_1^6 \alpha_2^4 \alpha_3 \\
& + 591142 x_3^2 x_2 \alpha_2^4 \alpha_1^4 \alpha_3^3 + 2273496 x_3^2 x_2 \alpha_2^6 \alpha_3^3 \alpha_1^2 - 66624 x_3^2 x_2 \alpha_2^6 \alpha_3^5 \\
& - 1872 x_3^2 x_2 \alpha_1^5 \alpha_2^6 - 7706650 x_3^2 x_2 \alpha_2^6 \alpha_1^3 \alpha_3^3 + 11557775 x_3^2 x_2 \alpha_2^4 \alpha_1^4 \alpha_3^4 \\
& + 999425 x_3^2 x_2 \alpha_2^8 \alpha_1^4 - 3660825 x_3^2 x_2 \alpha_2^8 \alpha_1^3 \alpha_3 - 21600 x_3^2 x_2 \alpha_2^2 \alpha_1^9 \alpha_3 \\
& - 3779750 x_3^2 x_2 \alpha_2^6 \alpha_1^5 \alpha_3 + 640000 x_3^2 x_2 \alpha_2^{12} - 117500 x_3^2 x_2 \alpha_2^6 \alpha_3^5 \alpha_1 \\
& - 613800 x_3^2 x_2 \alpha_1^7 \alpha_2^4 \alpha_3 + 571500 x_3^2 x_2 \alpha_1^8 \alpha_3^2 \alpha_2^2 - 62400 \alpha_2^{11} x_1 x_3^2
\end{aligned}$$

$$\begin{aligned}
& + 334600 x_3^2 x_2 \alpha_2^4 \alpha_3^6 \alpha_1^2 + 9995950 x_3^2 x_2 \alpha_2^6 \alpha_1^4 \alpha_3^2 + 5474425 x_3^2 x_2 \alpha_2^4 \alpha_1^6 \alpha_3^2 \\
& + 1907400 x_3^2 x_2 \alpha_1^6 \alpha_3^6 + 905100 x_3^2 x_2 \alpha_1^8 \alpha_3^4 + 149444 x_3^2 x_2 \alpha_2^8 \alpha_3^3 \\
& - 15496 x_3^2 x_2 \alpha_2^8 \alpha_1^3 + 521360 x_3^2 x_2 \alpha_2^{10} \alpha_3 - 36640 x_3^2 x_2 \alpha_2^{10} \alpha_1 \\
& - 416175 x_3^2 x_2 \alpha_2^8 \alpha_3^3 \alpha_1 + 176700 x_3^2 x_2 \alpha_1^4 \alpha_3^8 + 552900 x_3^2 x_2 \alpha_2^{10} \alpha_1^2 \\
& + 10800 x_3^2 x_2 \alpha_2^4 \alpha_1^8 - 1907400 x_3^2 x_2 \alpha_1^7 \alpha_3^5 + 219000 x_3^2 x_2 \alpha_1^6 \alpha_2^6 \\
& - 176700 x_3^2 x_2 \alpha_1^9 \alpha_3^3 + 10800 x_3^2 x_2 \alpha_1^{10} \alpha_3^2 - 3599200 x_3^2 x_2 \alpha_1^7 \alpha_3^3 \alpha_2^2 \\
& + 2491575 x_3^2 x_2 \alpha_2^8 \alpha_3^2 \alpha_1^2 + 1384750 x_3^2 x_2 \alpha_2^6 \alpha_3^4 \alpha_1^2 \\
& + 3013300 x_3^2 x_2 \alpha_1^4 \alpha_3^6 \alpha_2^2 - 905100 x_3^2 x_2 \alpha_1^5 \alpha_3^7 - 1521280 x_3^2 x_4 \alpha_2^2 \alpha_1^5 \alpha_3^4 \\
& + 78960 x_3^2 x_4 \alpha_2^2 \alpha_1^6 \alpha_3^3 - 18393070 x_3^2 x_4 \alpha_2^6 \alpha_3^2 \alpha_1^3 + 16010915 x_3^2 x_4 \alpha_2^8 \alpha_1^2 \alpha_3^2 \\
& - 7673400 x_3^2 x_2 \alpha_1^5 \alpha_3^5 \alpha_2^2 - 3307175 x_3^2 x_2 \alpha_2^4 \alpha_3^5 \alpha_1^3 \\
& - 13101425 x_3^2 x_2 \alpha_1^5 \alpha_3^3 \alpha_2^4 + 8120800 x_3^2 x_2 \alpha_1^6 \alpha_3^4 \alpha_2^2 + 14400 x_3^2 x_2 \alpha_1^2 \alpha_3^8 \alpha_2^2 \\
& - 425800 x_3^2 x_2 \alpha_1^3 \alpha_3^7 \alpha_2^2 + 113440 x_3^2 x_4 \alpha_3^7 \alpha_2^2 \alpha_1^2 - 2360 x_3^2 x_4 \alpha_3^8 \alpha_2^2 \alpha_1 \\
& - 401915 x_3^2 x_4 \alpha_3^6 \alpha_2^4 \alpha_1 + 22540 x_3^2 x_4 \alpha_1^6 \alpha_2^4 \alpha_3 + 9387375 x_3^2 x_4 \alpha_2^4 \alpha_1^4 \alpha_3^3 \\
& + 19857780 x_3^2 x_4 \alpha_2^6 \alpha_3^3 \alpha_1^2 + 2160 x_3^2 x_4 \alpha_1^9 \alpha_3^2 - 12046345 x_3^2 x_4 \alpha_2^4 \alpha_1^3 \alpha_3^4 \\
& - 5460500 x_3^2 x_4 \alpha_2^{10} \alpha_1 + 6040 x_3^2 x_4 \alpha_2^4 \alpha_3^7 + 178995 x_3^2 x_4 \alpha_2^6 \alpha_3^5 \\
& + 3600 x_3^2 x_4 \alpha_2^4 \alpha_1^7 - 51800 x_3^2 x_4 \alpha_1^5 \alpha_2^6 - 1080 x_3^2 x_2 \alpha_2^2 \alpha_3^9 \\
& - 10800 x_3^2 x_2 \alpha_1^3 \alpha_3^9 + 32000 x_3^2 x_2 \alpha_2^8 \alpha_3^4 + 230400 x_3^2 x_2 \alpha_2^{10} \alpha_3^2 \\
& - 3600 x_3^2 x_2 \alpha_2^6 \alpha_3^6 - 1139605 x_3^2 x_4 \alpha_2^8 \alpha_1^3 + 170240 x_3^2 x_4 \alpha_1^5 \alpha_3^6 \\
& - 11780 x_3^2 x_4 \alpha_1^2 \alpha_3^9 + 86000 x_3^2 x_4 \alpha_1^7 \alpha_3^4 + 48580 x_3^2 x_4 \alpha_1^7 \alpha_2^2 \alpha_3^2 \\
& + 4395905 x_3^2 x_4 \alpha_2^4 \alpha_3^5 \alpha_1^2 - 1088940 x_3^2 x_4 \alpha_3^6 \alpha_2^2 \alpha_1^3 + 2166525 x_3^2 x_4 \alpha_2^6 \alpha_1^4 \alpha_3^4 \\
& - 13334255 x_3^2 x_4 \alpha_2^8 \alpha_3^2 \alpha_1 - 4674830 x_3^2 x_4 \alpha_2^6 \alpha_3^4 \alpha_1 - 1240480 x_3^2 x_4 \alpha_2^4 \alpha_1^5 \alpha_3^2 \\
& + 2378080 x_3^2 x_4 \alpha_1^4 \alpha_3^5 \alpha_2^2 + 720 x_3^2 x_4 \alpha_3^{10} \alpha_1 - 5760 x_3^2 x_4 \alpha_1^8 \alpha_2^2 \alpha_3 \\
& + 2812500 x_3^2 x_4 \alpha_2^{10} \alpha_3 - 144940 x_3^2 x_4 \alpha_1^6 \alpha_3^5 - 135860 x_3^2 x_4 \alpha_1^4 \alpha_3^7 \\
& - 27420 x_3^2 x_4 \alpha_1^8 \alpha_3^3 - 720 x_3^2 x_4 \alpha_2^2 \alpha_3^9 + 60880 x_3^2 x_4 \alpha_1^3 \alpha_3^8 \\
& + 1382225 x_3^2 x_4 \alpha_2^8 \alpha_3^3 + 1221480 \alpha_2 x_3 \alpha_1^3 \alpha_3^5 + 320180 \alpha_2 x_3 \alpha_1^5 \alpha_3^3 \\
& - 334060 \alpha_2^3 x_3 \alpha_1^6 \alpha_3^2 + 6480 \alpha_2 x_3 \alpha_3^9 \alpha_1 + 1401260 \alpha_2^7 x_3 \alpha_1^3 \alpha_3^3 \\
& - 4606420 \alpha_2^5 x_3 \alpha_1^3 \alpha_3^4 + 1348540 \alpha_2^7 x_3 \alpha_1^3 \alpha_3^3 - 2895575 \alpha_2^5 x_3 \alpha_1^4 \alpha_3^2 \\
& + 110700 \alpha_2^3 x_3 \alpha_1^7 \alpha_3^3 + 14400 \alpha_2^3 x_3 \alpha_1^3 \alpha_3^7 - 6480 \alpha_2^3 x_3 \alpha_1^8 \alpha_3^2
\end{aligned}$$

$$\begin{aligned}
& +136725 \alpha_2^3 x_3^3 \alpha_3^7 \alpha_1 - 82260 \alpha_2 x_3^3 \alpha_1^2 \alpha_3^8 + 469680 \alpha_2^7 x_3^3 \alpha_1^2 \alpha_3^2 \\
& + 5118000 \alpha_2^5 x_3^3 \alpha_1^3 \alpha_3^3 - 4596840 \alpha_2^3 x_3^3 \alpha_1^4 \alpha_3^4 - 4280820 \alpha_2^9 x_3^3 \alpha_1 \alpha_3 \\
& - 148760 \alpha_2^7 x_3^3 \alpha_3^4 - 75310 \alpha_2^9 x_3^3 \alpha_1^2 - 94120 \alpha_2^7 x_3^3 \alpha_1^4 - 38265 \alpha_2^5 x_3^3 \alpha_3^6 \\
& - 7920 \alpha_2^5 x_3^3 \alpha_1^6 - 3780 \alpha_2^3 x_3^3 \alpha_3^8 - 2097000 \alpha_2^{11} x_3 x_4^2 + 244800 \alpha_2^{11} x_1 x_4^2 \\
& - 19000 \alpha_2^{12} x_4 x_2^2 + 50408 \alpha_2^{10} x_2^3 \alpha_3^2 + 12422 \alpha_2^8 x_2^3 \alpha_3^4 + 387490 \alpha_2^9 x_3^3 \alpha_3^2 \\
& + 1115354 \alpha_2^7 x_1 x_3^2 \alpha_1^2 \alpha_3^2 - 1762484 \alpha_2^5 x_1 x_3^2 \alpha_1^3 \alpha_3^3 \\
& + 1120560 \alpha_2^3 x_1 x_3^2 \alpha_1^4 \alpha_3^4 + 214438 \alpha_2^5 x_1 x_3^2 \alpha_3^6 - 1440900 \alpha_2^9 x_1 x_3^2 \alpha_3^3 \\
& + 1555350 \alpha_2^9 x_1 x_3^2 \alpha_1^3 + 1080 \alpha_2 x_1 x_3^2 \alpha_3^{10} + 26454 \alpha_2^3 x_1 x_3^2 \alpha_3^8 \\
& - 2970000 \alpha_2^{11} x_1 x_3^2 \alpha_3 - 317228 \alpha_2^3 x_1 x_3^2 \alpha_3^7 \alpha_1 + 118990 \alpha_2 x_1 x_3^2 \alpha_1^2 \alpha_3^8 \\
& - 147128 \alpha_2^9 x_1 x_3^2 \alpha_1 \alpha_3 - 4104 \alpha_2^5 x_1 x_3^2 \alpha_1^5 \alpha_3 - 9470925 \alpha_2^3 x_1 x_3^2 \alpha_1^4 \alpha_3^5 \\
& + 14467050 \alpha_2^9 x_1 x_3^2 \alpha_3^2 \alpha_1 + 3383175 \alpha_2^3 x_1 x_3^2 \alpha_3^6 \alpha_1^3 \\
& + 23211900 \alpha_2^5 x_1 x_3^2 \alpha_1^3 \alpha_3^4 + 160200 \alpha_2^5 x_1 x_3^2 \alpha_1^6 \alpha_3 \\
& - 30613950 \alpha_2^5 x_1 x_3^2 \alpha_1^4 \alpha_3^3 - 2037362 \alpha_2^3 x_1 x_3^2 \alpha_1^3 \alpha_3^5 - 5904 \alpha_2^9 x_1 x_3^2 \alpha_1^2 \\
& - 456 \alpha_2^7 x_1 x_3^2 \alpha_1^4 + 444180 \alpha_2 x_1 x_3^2 \alpha_1^4 \alpha_3^6 - 1648828 \alpha_2^5 x_1 x_3^2 \alpha_3^5 \alpha_1 \\
& - 339028 \alpha_2 x_1 x_3^2 \alpha_1^3 \alpha_3^7 + 927176 \alpha_2^9 x_1 x_3^2 \alpha_3^2 + 734406 \alpha_2^7 x_1 x_3^2 \alpha_3^4 \\
& + 1275050 \alpha_2^3 x_1 x_3^2 \alpha_1^2 \alpha_3^6 + 11406 x_3^2 x_2 \alpha_3^8 \alpha_2^2 \alpha_1 + 63288 x_3^2 x_2 \alpha_3^6 \alpha_2^4 \alpha_1 \\
& + 353172 x_3^2 x_2 \alpha_2^8 \alpha_1^2 \alpha_3 - 157194 x_3^2 x_2 \alpha_2^2 \alpha_1^5 \alpha_3^4 + 33456 x_3^2 x_2 \alpha_2^2 \alpha_1^6 \alpha_3^3 \\
& - 12864 x_3^2 x_2 \alpha_3^7 \alpha_2^2 \alpha_1^2 - 756960 x_3^2 x_2 \alpha_2^6 \alpha_3^2 \alpha_1^3 - 190810 \alpha_2^3 x_1 x_3^2 \alpha_1^5 \alpha_3^3 \\
& + 55750 \alpha_2 x_1 x_3^2 \alpha_1^6 \alpha_3^4 - 2900706 \alpha_2^7 x_1 x_3^2 \alpha_1^3 \alpha_3 + 3582912 \alpha_2^5 x_1 x_3^2 \alpha_1^2 \alpha_3^4 \\
& - 69590 \alpha_2^7 x_1 x_3^2 \alpha_1^3 \alpha_3 + 211634 \alpha_2^5 x_1 x_3^2 \alpha_1^4 \alpha_3^2 - 3576 \alpha_2 x_1 x_3^2 \alpha_1^7 \alpha_3^3 \\
& - 2160 x_3^2 x_2 \alpha_1^7 \alpha_2^2 \alpha_3^2 + 547040 x_3^2 x_2 \alpha_2^4 \alpha_3^5 \alpha_1^2 - 170052 x_3^2 x_2 \alpha_3^6 \alpha_2^2 \alpha_1^3 \\
& - 87304 x_3^2 x_2 \alpha_2^4 \alpha_1^5 \alpha_3^2 + 298488 x_3^2 x_2 \alpha_1^4 \alpha_3^5 \alpha_2^2 + 68264 x_3^2 x_2 \alpha_2^6 \alpha_1^4 \alpha_3 \\
& - 1791888 x_3^2 x_2 \alpha_2^8 \alpha_3^2 \alpha_1 - 17886 x_3^2 x_2 \alpha_2^4 \alpha_3^7 + 252735 \alpha_2^5 x_3 x_4^2 \alpha_3^5 \alpha_1 \\
& - 98940 \alpha_2^3 x_3 x_4^2 \alpha_1^3 \alpha_3^5 + 323760 \alpha_2 x_3 x_4^2 \alpha_1^4 \alpha_3^6 + 336520 \alpha_2 x_3 x_4^2 \alpha_1^6 \alpha_3^4 \\
& + 3386580 \alpha_2^7 x_3 x_4^2 \alpha_1^3 \alpha_3 - 2236230 \alpha_2^5 x_3 x_4^2 \alpha_1^2 \alpha_3^4 - 4325620 \alpha_2^7 x_3 x_4^2 \alpha_1^2 \alpha_3^3 \\
& + 4353570 \alpha_2^5 x_3 x_4^2 \alpha_1^4 \alpha_3^2 - 121560 \alpha_2 x_3 x_4^2 \alpha_1^7 \alpha_3^3 + 43810425 \alpha_2^7 x_1 x_3^2 \alpha_3^2 \alpha_1^3 \\
& - 1253670 \alpha_2^9 x_3 x_4^2 \alpha_3^2 + 461700 \alpha_2^5 x_1 x_3^2 \alpha_3^6 \alpha_1 - 30116700 \alpha_2^9 x_1 x_3^2 \alpha_1^2 \alpha_3 \\
& + 10015425 \alpha_2^3 x_1 x_3^2 \alpha_1^5 \alpha_3^4 - 1917075 \alpha_2^3 x_1 x_3^2 \alpha_1^6 \alpha_3^3 + 83100 \alpha_2 x_1 x_3^2 \alpha_1^8 \alpha_3^3
\end{aligned}$$

$$\begin{aligned}
& -10800 \alpha_2 x_1 x_3^2 \alpha_1^9 \alpha_3^2 + 8055000 \alpha_2^{11} x_1 x_3^2 \alpha_1 - 26648025 \alpha_2^7 x_1 x_3^2 \alpha_3^3 \alpha_1^2 \\
& -178200 \alpha_2^7 x_1 x_3^2 \alpha_3^5 - 10800 \alpha_2^5 x_1 x_3^2 \alpha_1^7 - 37200 \alpha_2^7 x_1 x_3^2 \alpha_1^5 \\
& -160475 \alpha_2^7 x_3 x_4^2 \alpha_3^4 + 1788330 \alpha_2^9 x_3 x_4^2 \alpha_1^2 - 386100 \alpha_2^3 x_1 x_3^2 \alpha_3^7 \alpha_1^2 \\
& + 4932675 \alpha_2^7 x_1 x_3^2 \alpha_3^4 \alpha_1 - 206100 \alpha_2^3 x_1 x_3^2 \alpha_1^7 \alpha_3^2 - 672900 \alpha_2 x_1 x_3^2 \alpha_1^4 \alpha_3^7 \\
& - 6202050 \alpha_2^5 x_1 x_3^2 \alpha_3^5 \alpha_1^2 + 238200 \alpha_2 x_1 x_3^2 \alpha_1^7 \alpha_3^4 - 1150200 \alpha_2 x_1 x_3^2 \alpha_1^6 \alpha_3^5 \\
& - 4537875 \alpha_2^7 x_1 x_3^2 \alpha_1^4 \alpha_3 + 8136 \alpha_2^3 x_1 x_3^2 \alpha_1^6 \alpha_3^2 + 1410000 \alpha_2 x_1 x_3^2 \alpha_1^5 \alpha_3^6 \\
& + 21600 \alpha_2^3 x_1 x_3^2 \alpha_1^8 \alpha_3 + 4661400 \alpha_2^5 x_1 x_3^2 \alpha_1^5 \alpha_3^2 - 257422 \alpha_2 x_1 x_3^2 \alpha_1^5 \alpha_3^5 \\
& - 19974 \alpha_2 x_1 x_3^2 \alpha_3^9 \alpha_1 + 102600 \alpha_2 x_1 x_3^2 \alpha_1^3 \alpha_3^8 - 4320 x_1 x_2 x_3 \alpha_2^2 \alpha_3^9 \alpha_1 \\
& + 1342435 \alpha_2^9 x_1 x_3^2 \alpha_3^3 - 859885 \alpha_2^9 x_1 x_3^2 \alpha_1^3 \alpha_3 + 2592700 \alpha_2^{11} x_1 x_3^2 \alpha_3 \\
& - 1029300 \alpha_2^{11} x_1^2 x_3 \alpha_1 - 1432440 \alpha_2 x_1^2 x_3 \alpha_1^5 \alpha_3^6 + 1440 x_1 x_2 x_3 \alpha_1^2 \alpha_3^{10} \\
& - 85620 \alpha_2 x_1^2 x_3 \alpha_1^3 \alpha_3^8 + 3914940 x_1 x_2 x_3 \alpha_2^6 \alpha_1^3 \alpha_3^3 \\
& - 3731150 x_1 x_2 x_3 \alpha_2^4 \alpha_1^4 \alpha_3^4 - 713600 x_1 x_2 x_3 \alpha_2^8 \alpha_1^4 + 85120 x_1 x_2 x_3 \alpha_1^6 \alpha_3^6 \\
& - 29840 x_1 x_2 x_3 \alpha_1^8 \alpha_3^4 - 1807200 x_1 x_2 x_3 \alpha_2^{10} \alpha_1 \alpha_3 + 2880 x_1 x_2 x_3 \alpha_2^4 \alpha_3^8 \\
& - 41760 x_1 x_2 x_3 \alpha_1^8 \alpha_3^2 \alpha_2^2 + 27760 x_1 x_2 x_3 \alpha_1^7 \alpha_3^5 - 10892480 x_1 x_2 x_3 \alpha_2^6 \alpha_1^4 \alpha_3^2 \\
& + 89280 x_1 x_2 x_3 \alpha_1^7 \alpha_2^4 \alpha_3 + 8547770 x_1 x_2 x_3 \alpha_2^8 \alpha_1^3 \alpha_3 - 50400 x_1 x_2 x_3 \alpha_1^6 \alpha_2^6 \\
& + 2880 x_1 x_2 x_3 \alpha_1^9 \alpha_3^3 + 1804720 x_1 x_2 x_3 \alpha_2^6 \alpha_1^5 \alpha_3 - 1570840 x_1 x_2 x_3 \alpha_2^4 \alpha_1^6 \alpha_3^2 \\
& + 570000 x_1 x_2 x_3 \alpha_2^{12} - 1541400 x_1 x_2 x_3 \alpha_1^6 \alpha_3^4 \alpha_2^2 + 90280 x_1 x_2 x_3 \alpha_1^2 \alpha_3^8 \alpha_2^2 \\
& + 103280 x_1 x_2 x_3 \alpha_1^4 \alpha_3^8 + 628880 x_1 x_2 x_3 \alpha_1^4 \alpha_3^6 \alpha_2^2 - 1203130 x_1 x_2 x_3 \alpha_2^4 \alpha_3^5 \alpha_1^3 \\
& - 168160 x_1 x_2 x_3 \alpha_1^5 \alpha_3^7 + 1329360 x_1 x_2 x_3 \alpha_2^6 \alpha_3^4 \alpha_1^2 + 6469450 x_1 x_2 x_3 \alpha_1^5 \alpha_3^3 \alpha_2^4 \\
& - 534600 x_1 x_2 x_3 \alpha_1^3 \alpha_3^7 \alpha_2^2 - 662850 x_1 x_2 x_3 \alpha_2^8 \alpha_3^3 \alpha_1 \\
& + 992750 x_1 x_2 x_3 \alpha_2^4 \alpha_3^6 \alpha_1^2 - 119960 x_1 x_2 x_3 \alpha_2^4 \alpha_3^7 \alpha_1 - 793020 x_1 x_2 x_3 \alpha_2^6 \alpha_3^5 \alpha_1 \\
& + 893360 x_1 x_2 x_3 \alpha_1^5 \alpha_3^5 \alpha_2^2 + 509560 x_1 x_2 x_3 \alpha_1^7 \alpha_3^3 \alpha_2^2 \\
& + 74930 x_1 x_2 x_3 \alpha_2^8 \alpha_3^2 \alpha_1^2 + 75900 x_1 x_2 x_3 \alpha_2^{10} \alpha_3^2 + 52160 x_1 x_2 x_3 \alpha_2^6 \alpha_3^6 \\
& - 2611100 x_1 x_2 x_3 \alpha_2^{10} \alpha_1^2 + 7406855 \alpha_2^9 x_2 x_3 \alpha_1^2 \alpha_3 + 145060 \alpha_2^3 x_2 x_3 \alpha_1^5 \alpha_3^4 \\
& - 310900 \alpha_2^3 x_2 x_3 \alpha_1^6 \alpha_3^3 - 8378990 \alpha_2^7 x_2 x_3 \alpha_3^2 \alpha_1^3 - 22480 x_1 x_2 x_3 \alpha_1^3 \alpha_3^9 \\
& + 231590 x_1 x_2 x_3 \alpha_2^8 \alpha_3^4 + 184140 \alpha_2^5 x_2 x_3 \alpha_3^6 \alpha_1 + 49680 \alpha_2^3 x_2 x_3 \alpha_1^7 \alpha_3^2 \\
& - 102880 \alpha_2 x_2 x_3 \alpha_1^4 \alpha_3^7 - 1016875 \alpha_2^5 x_2 x_3 \alpha_3^5 \alpha_1^2 + 485420 \alpha_2^3 x_2 x_3 \alpha_3^6 \alpha_1^3 \\
& - 545665 \alpha_2^5 x_2 x_3 \alpha_1^3 \alpha_3^4 + 1085310 \alpha_2^7 x_2 x_3 \alpha_3^4 \alpha_1 - 6660 \alpha_2^5 x_2 x_3 \alpha_1^6 \alpha_3
\end{aligned}$$



$$\begin{aligned}
& + 3520095 \alpha_2^5 x_2^2 x_3 \alpha_1^4 \alpha_3^3 + 1275090 \alpha_2^7 x_2^2 x_3 \alpha_3^3 \alpha_1^2 - 27360 \alpha_2^2 x_2^2 x_3 \alpha_1^8 \alpha_3^3 \\
& - 108240 \alpha_2^3 x_2^2 x_3 \alpha_3^7 \alpha_1^2 + 7200 \alpha_2^3 x_2^2 x_3 \alpha_3^8 \alpha_1 - 720 \alpha_2^4 x_4^3 \alpha_3^7 \\
& - 332320 \alpha_2^2 x_2^2 x_3 \alpha_1^6 \alpha_3^5 + 856990 \alpha_2^7 x_2^2 x_3 \alpha_1^4 \alpha_3 - 382585 \alpha_2^9 x_2^2 x_3 \alpha_3^2 \alpha_1 \\
& - 1440 \alpha_2^2 x_2^2 x_3 \alpha_1^2 \alpha_3^9 - 283675 \alpha_2^5 x_2^2 x_3 \alpha_1^5 \alpha_3^2 - 429500 \alpha_2^3 x_2^2 x_3 \alpha_1^4 \alpha_3^5 \\
& + 175120 \alpha_2^2 x_2^2 x_3 \alpha_1^7 \alpha_3^4 + 196900 \alpha_2^{10} x_4^3 \alpha_3 + 267360 \alpha_2^2 x_2^2 x_3 \alpha_1^5 \alpha_3^6 \\
& - 184700 \alpha_2^{11} x_2^2 x_3 \alpha_3 - 5760 \alpha_2^5 x_2^2 x_3 \alpha_3^7 - 97420 \alpha_2^7 x_2^2 x_3 \alpha_3^5 \\
& - 15660 \alpha_2^7 x_2^2 x_3 \alpha_1^5 - 2360700 \alpha_2^{11} x_2^2 x_3 \alpha_1 + 69515 \alpha_2^8 x_4^3 \alpha_1^3 \\
& - 54780 x_4 x_3 x_1 \alpha_2^4 \alpha_3^7 - 441936 x_4 x_3 x_1 \alpha_2^6 \alpha_3^5 + 2880 x_4 x_3 x_1 \alpha_1^5 \alpha_2^6 \\
& + 41820 x_4 x_3 x_1 \alpha_3^8 \alpha_2^2 \alpha_1 + 649488 x_4 x_3 x_1 \alpha_3^6 \alpha_2^4 \alpha_1 + 121280 x_4 x_3 x_1 \alpha_2^{10} \alpha_1 \\
& - 831384 x_4 x_3 x_1 \alpha_2^8 \alpha_1^2 \alpha_3 + 206604 x_4 x_3 x_1 \alpha_2^2 \alpha_1^5 \alpha_3^4 - 31632 x_4 x_3 x_1 \alpha_2^2 \alpha_1^6 \alpha_3^3 \\
& + 1409568 x_4 x_3 x_1 \alpha_2^6 \alpha_3^2 \alpha_1^3 + 21520 \alpha_2^2 x_2^2 x_3 \alpha_1^3 \alpha_3^8 + 649848 x_4 x_3 x_1 \alpha_3^6 \alpha_2^2 \alpha_1^3 \\
& + 3127504 x_4 x_3 x_1 \alpha_2^4 \alpha_1^3 \alpha_3^4 - 4608 x_4 x_3 x_1 \alpha_1^6 \alpha_2^4 \alpha_3 - 919028 x_4 x_3 x_1 \alpha_2^4 \alpha_1^4 \alpha_3^3 \\
& - 6002064 x_4 x_3 x_1 \alpha_2^6 \alpha_3^3 \alpha_1^2 - 239952 x_4 x_3 x_1 \alpha_3^7 \alpha_2^2 \alpha_1^2 \\
& + 3320000 x_4 x_3 x_1 \alpha_2^6 \alpha_3^4 \alpha_1 + 1728 x_4 x_3 x_1 \alpha_1^7 \alpha_2^2 \alpha_3^2 \\
& - 2505280 x_4 x_3 x_1 \alpha_2^4 \alpha_3^5 \alpha_1^2 - 1507768 x_4 x_3 x_1 \alpha_2^8 \alpha_3^3 + 25712 x_4 x_3 x_1 \alpha_2^8 \alpha_1^3 \\
& + 95312 x_4 x_3 x_1 \alpha_2^4 \alpha_1^5 \alpha_3^2 - 450975 \alpha_2^9 x_2^2 x_3 \alpha_3^3 - 2868950 x_4 x_3 x_1 \alpha_2^8 \alpha_1^4 \\
& - 2538000 x_4 x_3 x_1 \alpha_1^6 \alpha_3^6 - 801000 x_4 x_3 x_1 \alpha_1^8 \alpha_3^4 - 41704450 x_4 x_3 x_1 \alpha_2^4 \alpha_1^4 \alpha_3^4 \\
& - 2502200 x_4 x_3 x_1 \alpha_2^{10} \alpha_1 \alpha_3 - 626256 x_4 x_3 x_1 \alpha_1^4 \alpha_3^5 \alpha_2^2 - 1834720 x_4 x_3 x_1 \alpha_2^{10} \alpha_3 \\
& - 91552 x_4 x_3 x_1 \alpha_2^6 \alpha_1^4 \alpha_3 + 5303136 x_4 x_3 x_1 \alpha_2^8 \alpha_3^2 \alpha_1 - 2960 \alpha_2^6 x_4^3 \alpha_3^5 \\
& + 64800 x_4 x_3 x_1 \alpha_1^9 \alpha_3^3 + 8739900 x_4 x_3 x_1 \alpha_2^6 \alpha_1^5 \alpha_3 - 9700950 x_4 x_3 x_1 \alpha_2^4 \alpha_1^6 \alpha_3^2 \\
& + 45060300 x_4 x_3 x_1 \alpha_2^6 \alpha_1^3 \alpha_3^3 + 484800 x_4 x_3 x_1 \alpha_2^6 \alpha_3^5 \alpha_1 \\
& + 473400 x_4 x_3 x_1 \alpha_1^7 \alpha_2^4 \alpha_3 - 331200 x_4 x_3 x_1 \alpha_1^8 \alpha_3^2 \alpha_2^2 + 935900 \alpha_2^{10} x_4^3 \alpha_1 \\
& - 261000 x_4 x_3 x_1 \alpha_1^4 \alpha_3^8 - 1185000 x_4 x_3 x_1 \alpha_2^4 \alpha_3^6 \alpha_1^2 - 9548600 x_4 x_3 x_1 \alpha_2^{10} \alpha_1^2 \\
& + 42706550 x_4 x_3 x_1 \alpha_1^5 \alpha_3^3 \alpha_2^4 - 15788600 x_4 x_3 x_1 \alpha_1^6 \alpha_3^4 \alpha_2^2 \\
& - 55800 x_4 x_3 x_1 \alpha_1^2 \alpha_3^8 \alpha_2^2 + 978200 x_4 x_3 x_1 \alpha_1^3 \alpha_3^7 \alpha_2^2 + 2640000 x_4 x_3 x_1 \alpha_2^{12} \\
& + 17110800 x_4 x_3 x_1 \alpha_1^5 \alpha_3^5 \alpha_2^2 + 4631000 x_4 x_3 x_1 \alpha_1^7 \alpha_3^3 \alpha_2^2 \\
& - 18066450 x_4 x_3 x_1 \alpha_2^8 \alpha_3^2 \alpha_1^2 - 7116300 x_4 x_3 x_1 \alpha_2^6 \alpha_3^4 \alpha_1^2 \\
& - 6544400 x_4 x_3 x_1 \alpha_1^4 \alpha_3^6 \alpha_2^2 + 11286650 x_4 x_3 x_1 \alpha_2^4 \alpha_3^5 \alpha_1^3 - 437535 \alpha_2^9 x_2^2 x_3 \alpha_1^3
\end{aligned}$$

$$\begin{aligned}
& -23400 x_4 x_3 x_1 \alpha_2^6 \alpha_3^6 + 1292400 x_4 x_3 x_1 \alpha_1^5 \alpha_3^7 + 115250 x_4 x_3 x_1 \alpha_2^8 \alpha_3^3 \alpha_1 \\
& + 63000 x_4 x_3 x_1 \alpha_2^4 \alpha_3^7 \alpha_1 + 2226600 x_4 x_3 x_1 \alpha_1^7 \alpha_3^5 - 56448300 x_4 x_3 x_1 \alpha_2^6 \alpha_1^4 \alpha_3^2 \\
& + 36852350 x_4 x_3 x_1 \alpha_2^8 \alpha_1^3 \alpha_3 - 207000 x_4 x_3 x_1 \alpha_1^6 \alpha_2^6 + 12600 \alpha_2^5 x_4 x_3 x_2 \alpha_1^7 \\
& + 499550 \alpha_2^7 x_4 x_3 x_2 \alpha_1^5 - 73800 \alpha_2^3 x_4 x_3 x_2 \alpha_3^7 \alpha_1^2 + 9000 \alpha_2^5 x_4 x_3 x_2 \alpha_3^6 \alpha_1 \\
& - 5442200 \alpha_2^9 x_4 x_3 x_2 \alpha_1^2 \alpha_3 + 16200 \alpha_2^7 x_4 x_3 x_2 \alpha_3^5 + 17650850 \alpha_2^3 x_4 x_3 x_2 \alpha_1^5 \alpha_3^4 \\
& - 10688050 \alpha_2^3 x_4 x_3 x_2 \alpha_1^6 \alpha_3^3 + 21114450 \alpha_2^7 x_4 x_3 x_2 \alpha_3^2 \alpha_1^3 - 2160 x_4 x_3 x_1 \alpha_2^2 \alpha_3^9 \\
& + 16200 x_4 x_3 x_1 \alpha_1^3 \alpha_3^9 - 17000 x_4 x_3 x_1 \alpha_2^8 \alpha_3^4 + 966400 x_4 x_3 x_1 \alpha_2^{10} \alpha_3^2 \\
& + 13164000 \alpha_2^5 x_4 x_3 x_2 \alpha_1^3 \alpha_3^4 - 1555100 \alpha_2^5 x_4 x_3 x_2 \alpha_1^6 \alpha_3 \\
& - 28892700 \alpha_2^5 x_4 x_3 x_2 \alpha_1^4 \alpha_3^3 - 6120150 \alpha_2^7 x_4 x_3 x_2 \alpha_3^3 \alpha_1^2 \\
& - 539800 \alpha_2 x_4 x_3 x_2 \alpha_1^8 \alpha_3^3 + 14400 \alpha_2 x_4 x_3 x_2 \alpha_1^9 \alpha_3^2 - 306000 \alpha_2^{11} x_4 x_3 x_2 \alpha_1 \\
& + 2543800 \alpha_2 x_4 x_3 x_2 \alpha_1^7 \alpha_3^4 + 364000 \alpha_2^{11} x_4 x_3 x_2 \alpha_3 - 4124400 \alpha_2 x_4 x_3 x_2 \alpha_1^6 \alpha_3^5 \\
& + 28025 \alpha_2^8 x_4^3 \alpha_3^3 - 10258550 \alpha_2^3 x_4 x_3 x_2 \alpha_1^4 \alpha_3^5 - 10793850 \alpha_2^7 x_4 x_3 x_2 \alpha_1^4 \alpha_3 \\
& + 97500 \alpha_2^9 x_4 x_3 x_2 \alpha_3^2 \alpha_1 + 348200 \alpha_2^7 x_4 x_3 x_2 \alpha_3^4 \alpha_1 + 1595350 \alpha_2^3 x_4 x_3 x_2 \alpha_1^7 \alpha_3^2 \\
& - 695800 \alpha_2 x_4 x_3 x_2 \alpha_1^4 \alpha_3^7 - 1638200 \alpha_2^5 x_4 x_3 x_2 \alpha_3^5 \alpha_1^2 \\
& + 1916400 \alpha_2^3 x_4 x_3 x_2 \alpha_3^6 \alpha_1^3 + 2569700 \alpha_2^9 x_4 x_3 x_2 \alpha_1^3 \\
& + 2753200 \alpha_2 x_4 x_3 x_2 \alpha_1^5 \alpha_3^6 + 2160 \alpha_2^3 x_4 x_3 x_2 \alpha_3^8 - 27000 \alpha_2^3 x_4 x_3 x_2 \alpha_1^8 \alpha_3 \\
& + 16368400 \alpha_2^5 x_4 x_3 x_2 \alpha_1^5 \alpha_3^2 - 17535 \alpha_2^6 x_4^3 \alpha_1^5 - 320000 \alpha_2^{12} x_2^2 x_4^2 \\
& + 792496 \alpha_2^9 x_4 x_3 x_2 \alpha_1 \alpha_3 + 48600 \alpha_2 x_4 x_3 x_2 \alpha_1^3 \alpha_3^8 + 33840 \alpha_2^5 x_4 x_3 x_2 \alpha_1^5 \alpha_3 \\
& - 13824 \alpha_2^3 x_4 x_3 x_2 \alpha_1^6 \alpha_3^2 - 2700 \alpha_2^4 x_4^3 \alpha_1^7 - 250636 \alpha_2^5 x_4 x_3 x_2 \alpha_1^4 \alpha_3^2 \\
& - 17856 \alpha_2^7 x_4 x_3 x_2 \alpha_1^4 - 23532 \alpha_2^3 x_4 x_3 x_2 \alpha_3^7 \alpha_1 + 36492 \alpha_2^5 x_4 x_3 x_2 \alpha_3^6 \\
& + 339068 \alpha_2^7 x_4 x_3 x_2 \alpha_1^3 \alpha_3 - 939876 \alpha_2^7 x_4 x_3 x_2 \alpha_1^2 \alpha_3^2 \\
& + 545800 \alpha_2^5 x_4 x_3 x_2 \alpha_1^3 \alpha_3^3 - 138820 \alpha_2^3 x_4 x_3 x_2 \alpha_1^4 \alpha_3^4 + 69400 \alpha_2^9 x_4 x_3 x_2 \alpha_3^3 \\
& - 1440 \alpha_2 x_3 x_4^2 \alpha_3^9 \alpha_1 - 973065 \alpha_2^5 x_3 x_4^2 \alpha_1^5 \alpha_3 + 585600 \alpha_2^3 x_3 x_4^2 \alpha_1^6 \alpha_3^2 \\
& - 139472 \alpha_2^9 x_4 x_3 x_2 \alpha_3^2 + 139700 \alpha_2^7 x_4 x_3 x_2 \alpha_3^4 - 467920 \alpha_2 x_3 x_4^2 \alpha_1^5 \alpha_3^5 \\
& + 28004 \alpha_2^3 x_4 x_3 x_2 \alpha_1^2 \alpha_3^6 + 57360 \alpha_2^3 x_4 x_3 x_2 \alpha_1^5 \alpha_3^3 + 226892 \alpha_2^3 x_4 x_3 x_2 \alpha_1^3 \alpha_3^5 \\
& - 132832 \alpha_2^9 x_4 x_3 x_2 \alpha_1^2 + 674100 \alpha_2^7 x_4 x_3 x_2 \alpha_1^3 \alpha_3^3 - 718320 \alpha_2^5 x_4 x_3 x_2 \alpha_1^2 \alpha_3^4 \\
& + 22120 \alpha_2 x_3 x_4^2 \alpha_1^2 \alpha_3^8 - 6531190 \alpha_2^7 x_3 x_4^2 \alpha_1^2 \alpha_3^2 + 1074670 \alpha_2^5 x_3 x_4^2 \alpha_1^3 \alpha_3^3 \\
& + 1253780 \alpha_2^3 x_3 x_4^2 \alpha_1^4 \alpha_3^4 + 6929660 \alpha_2^9 x_3 x_4^2 \alpha_1 \alpha_3 - 135304 \alpha_2^5 x_4 x_3 x_2 \alpha_3^5 \alpha_1
\end{aligned}$$

$$\begin{aligned}
& -64800 \alpha_2^3 x_3 x_4^2 \alpha_1^7 \alpha_3 + 21600 \alpha_2 x_3 x_4^2 \alpha_1^8 \alpha_3^2 - 14720 \alpha_2^3 x_3 x_4^2 \alpha_3^7 \alpha_1 \\
& + 700 \alpha_2^5 x_3 x_4^2 \alpha_3^6 + 1440 \alpha_2^3 x_3 x_4^2 \alpha_3^8 - 227200 \alpha_2^{11} x_4 x_3 x_2 + 51300 \alpha_2^5 x_3 x_4^2 \alpha_1^6 \\
& - 113080 \alpha_2 x_3 x_4^2 \alpha_1^3 \alpha_3^7 + 69420 \alpha_2^3 x_3 x_4^2 \alpha_1^2 \alpha_3^6 - 2031300 \alpha_2^3 x_3 x_4^2 \alpha_1^5 \alpha_3^3 \\
& + 557625 \alpha_2^7 x_3 x_4^2 \alpha_1^4 + 22600650 \alpha_2^5 x_1 x_4^2 \alpha_1^4 \alpha_3^3 + 43200 \alpha_2 x_1 x_4^2 \alpha_1^9 \alpha_3^2 \\
& + 1221075 \alpha_2^3 x_1 x_4^2 \alpha_1^6 \alpha_3^3 - 134400 \alpha_2^6 x_4 x_2^2 \alpha_3^5 \alpha_1 - 4700 \alpha_2^2 x_4 x_2^2 \alpha_1^3 \alpha_3^7 \\
& + 323410 \alpha_2^{10} x_4 x_2^2 \alpha_3^2 - 302244 \alpha_2^5 x_1 x_4^2 \alpha_3^5 \alpha_1 - 3377650 \alpha_2^9 x_1 x_4^2 \alpha_3^2 \alpha_1 \\
& - 840000 \alpha_2^7 x_1 x_4^2 \alpha_3^4 \alpha_1 + 522975 \alpha_2^3 x_1 x_4^2 \alpha_1^7 \alpha_3^2 + 211200 \alpha_2 x_1 x_4^2 \alpha_1^4 \alpha_3^7 \\
& + 1361400 \alpha_2^5 x_1 x_4^2 \alpha_3^5 \alpha_1^2 - 910100 \alpha_2^3 x_1 x_4^2 \alpha_3^6 \alpha_1^3 - 9373400 \alpha_2^5 x_1 x_4^2 \alpha_1^3 \alpha_3^4 \\
& - 721050 \alpha_2^5 x_1 x_4^2 \alpha_1^6 \alpha_3 + 12960 \alpha_2^3 x_1 x_4^2 \alpha_1^6 \alpha_3^2 - 668400 \alpha_2 x_1 x_4^2 \alpha_1^5 \alpha_3^6 \\
& - 89100 \alpha_2^3 x_1 x_4^2 \alpha_1^8 \alpha_3 - 2308500 \alpha_2^5 x_1 x_4^2 \alpha_1^5 \alpha_3^2 + 4271725 \alpha_2^3 x_1 x_4^2 \alpha_1^4 \alpha_3^5 \\
& - 198600 \alpha_2 x_1 x_4^2 \alpha_1^7 \alpha_3^4 + 741600 \alpha_2 x_1 x_4^2 \alpha_1^6 \alpha_3^5 + 1721175 \alpha_2^7 x_1 x_4^2 \alpha_1^4 \alpha_3 \\
& + 80960 \alpha_2^8 x_4 x_2^2 \alpha_3^4 + 448164 \alpha_2^5 x_1 x_4^2 \alpha_1^3 \alpha_3^3 - 141138 \alpha_2^3 x_1 x_4^2 \alpha_1^4 \alpha_3^4 \\
& - 190824 \alpha_2^9 x_1 x_4^2 \alpha_1 \alpha_3 - 16200 \alpha_2 x_1 x_4^2 \alpha_1^3 \alpha_3^8 - 32616 \alpha_2^5 x_1 x_4^2 \alpha_1^5 \alpha_3 \\
& + 830910 \alpha_2^{10} x_4 x_2^2 \alpha_1^2 - 1178070 \alpha_2^7 x_1 x_4^2 \alpha_1 \alpha_3^3 + 798888 \alpha_2^5 x_1 x_4^2 \alpha_1^2 \alpha_3^4 \\
& - 169170 \alpha_2^7 x_1 x_4^2 \alpha_1^3 \alpha_3 + 31578 \alpha_2^5 x_1 x_4^2 \alpha_1^4 \alpha_3^2 - 21558 \alpha_2^3 x_1 x_4^2 \alpha_3^7 \alpha_1 \\
& - 344802 \alpha_2^7 x_1 x_4^2 \alpha_1^2 \alpha_3^2 + 177500 \alpha_2^9 x_1 x_4^2 \alpha_3^3 + 106818 \alpha_2^3 x_1 x_4^2 \alpha_1^2 \alpha_3^6 \\
& + 20664 \alpha_2^3 x_1 x_4^2 \alpha_1^5 \alpha_3^3 - 186186 \alpha_2^3 x_1 x_4^2 \alpha_1^3 \alpha_3^5 + 61200 \alpha_2^6 x_2 x_4^2 \alpha_1^3 \alpha_3^2 \\
& + 19494 \alpha_2^4 x_2 x_4^2 \alpha_1^5 \alpha_3^2 - 1944 \alpha_2^4 x_2 x_4^2 \alpha_1^6 \alpha_3 - 396624 \alpha_2^8 x_2 x_4^2 \alpha_3^2 \alpha_1 \\
& - 5460 \alpha_2^4 x_2 x_4^2 \alpha_1^2 \alpha_3^5 - 4356 \alpha_2^4 x_2 x_4^2 \alpha_1^4 \alpha_3^3 + 211626 \alpha_2^7 x_1 x_4^2 \alpha_3^4 \\
& + 123408 \alpha_2^9 x_1 x_4^2 \alpha_1^2 + 20736 \alpha_2^7 x_1 x_4^2 \alpha_1^4 + 28038 \alpha_2^5 x_1 x_4^2 \alpha_3^6 \\
& - 435150 \alpha_2^9 x_1 x_4^2 \alpha_1^3 + 1080 \alpha_2^3 x_1 x_4^2 \alpha_3^8 + 278000 \alpha_2^{11} x_1 x_4^2 \alpha_3 \\
& - 5937000 \alpha_2^{11} x_1 x_4^2 \alpha_1 + 23400 \alpha_2^7 x_1 x_4^2 \alpha_3^5 + 45900 \alpha_2^5 x_1 x_4^2 \alpha_1^7 \\
& + 310875 \alpha_2^7 x_1 x_4^2 \alpha_1^5 + 402396 \alpha_2^6 x_2 x_4^2 \alpha_3^3 \alpha_1^2 - 900 \alpha_2^2 x_2 x_4^2 \alpha_1^9 \alpha_3 \\
& + 50928 \alpha_2^6 x_2 x_4^2 \alpha_3^4 \alpha_1 - 122172 \alpha_2^4 x_2 x_4^2 \alpha_1^3 \alpha_3^4 + 11838 \alpha_2^4 x_2 x_4^2 \alpha_3^6 \alpha_1 \\
& - 89844 \alpha_2^8 x_2 x_4^2 \alpha_1^2 \alpha_3 - 37086 \alpha_2^6 x_2 x_4^2 \alpha_1^4 \alpha_3 + 864 \alpha_2^6 x_2 x_4^2 \alpha_1^5 \\
& + 586968 \alpha_2^9 x_1 x_4^2 \alpha_3^2 - 8449350 \alpha_2^6 x_2 x_4^2 \alpha_1^3 \alpha_3^3 + 6172825 \alpha_2^4 x_2 x_4^2 \alpha_1^4 \alpha_3^4 \\
& - 162900 \alpha_2^{10} x_2 x_4^2 \alpha_1 \alpha_3 - 1579900 \alpha_2^2 x_2 x_4^2 \alpha_1^5 \alpha_3^5 + 4339325 \alpha_2^8 x_2 x_4^2 \alpha_1^2 \alpha_3^2 \\
& - 1476650 \alpha_2^6 x_2 x_4^2 \alpha_1^5 \alpha_3 + 1206175 \alpha_2^4 x_2 x_4^2 \alpha_1^6 \alpha_3^2 + 11112 \alpha_2^8 x_2 x_4^2 \alpha_1^3
\end{aligned}$$

$$\begin{aligned}
& -18318 \alpha_2^6 x_2 x_4^2 \alpha_3^5 + 16800 \alpha_2^{10} x_2 x_4^2 \alpha_1 - 61668 \alpha_2^8 x_2 x_4^2 \alpha_3^3 \\
& + 900 \alpha_2^4 x_2 x_4^2 \alpha_1^8 - 69200 \alpha_2^{10} x_2 x_4^2 \alpha_3^2 - 6300 \alpha_2^6 x_2 x_4^2 \alpha_3^5 \alpha_1 \\
& + 1159075 \alpha_2^6 x_2 x_4^2 \alpha_1^2 \alpha_3^4 - 8403675 \alpha_2^8 x_2 x_4^2 \alpha_1^3 \alpha_3 \\
& + 10801500 \alpha_2^6 x_2 x_4^2 \alpha_1^4 \alpha_3^2 - 320900 \alpha_2^2 x_2 x_4^2 \alpha_1^7 \alpha_3^3 - 86150 \alpha_2^4 x_2 x_4^2 \alpha_1^7 \alpha_3 \\
& + 39025 \alpha_2^2 x_2 x_4^2 \alpha_1^8 \alpha_3^2 - 6332175 \alpha_2^4 x_2 x_4^2 \alpha_1^5 \alpha_3^3 - 1310475 \alpha_2^4 x_2 x_4^2 \alpha_1^3 \alpha_3^5 \\
& + 457925 \alpha_2^2 x_2 x_4^2 \alpha_1^4 \alpha_3^6 + 1438050 \alpha_2^2 x_2 x_4^2 \alpha_1^6 \alpha_3^4 - 237325 \alpha_2^8 x_2 x_4^2 \alpha_1^3 \alpha_3 \\
& + 94800 \alpha_2^{10} x_2 x_4^2 \alpha_3 - 33300 \alpha_2^2 x_2 x_4^2 \alpha_1^3 \alpha_3^7 - 11700 \alpha_2^8 x_2 x_4^2 \alpha_3^4 \\
& + 2496300 \alpha_2^{10} x_2 x_4^2 \alpha_1^2 + 591375 \alpha_2^8 x_2 x_4^2 \alpha_1^4 + 47125 \alpha_2^6 x_2 x_4^2 \alpha_1^6 \\
& - 1080 \alpha_2^4 x_2 x_4^2 \alpha_3^7 + 51300 \alpha_2^4 x_2 x_4^2 \alpha_1^2 \alpha_3^6 - 18105 \alpha_2^4 x_4^3 \alpha_1^6 \alpha_3 \\
& - 256335 \alpha_2^8 x_4^3 \alpha_3^2 \alpha_1 - 93760 \alpha_2^4 x_4^3 \alpha_1^2 \alpha_3^5 - 10340 \alpha_2^2 x_4^3 \alpha_3^7 \alpha_1^2 \\
& - 3385 \alpha_2^6 x_4^3 \alpha_3^4 \alpha_1 + 555785 \alpha_2^4 x_4^3 \alpha_1^3 \alpha_3^4 - 76860 \alpha_2^2 x_4^3 \alpha_1^6 \alpha_3^3 \\
& + 198920 \alpha_2^2 x_4^3 \alpha_1^5 \alpha_3^4 + 10600 \alpha_2^4 x_4^3 \alpha_3^6 \alpha_1 - 2975845 \alpha_2^8 x_4^3 \alpha_1^2 \alpha_3^2 \\
& - 353530 \alpha_2^6 x_4^3 \alpha_1^4 \alpha_3 + 720 \alpha_2^2 x_4^3 \alpha_3^8 \alpha_1 - 1374355 \alpha_2^4 x_4^3 \alpha_1^4 \alpha_3^3 \\
& + 3161380 \alpha_2^6 x_4^3 \alpha_1^3 \alpha_3^2 + 320375 \alpha_2^4 x_4^3 \alpha_1^5 \alpha_3^2 + 540 \alpha_2^3 x_1^2 x_3 \alpha_3^8 \alpha_1 \\
& - 386130 \alpha_2^5 x_1^2 x_3 \alpha_3^6 \alpha_1 + 6278565 \alpha_2^9 x_1^2 x_3 \alpha_1^2 \alpha_3 - 7301880 \alpha_2^3 x_1^2 x_3 \alpha_1^5 \alpha_3^4 \\
& + 307725 \alpha_2^3 x_1^2 x_3 \alpha_3^7 \alpha_1^2 + 2947645 \alpha_2^3 x_1^2 x_3 \alpha_1^6 \alpha_3^3 \\
& - 13726530 \alpha_2^7 x_1^2 x_3 \alpha_3^2 \alpha_1^3 - 184800 \alpha_2^2 x_4^3 \alpha_1^4 \alpha_3^5 - 352050 \alpha_2^6 x_4^3 \alpha_3^3 \alpha_1^2 \\
& + 14302305 \alpha_2^5 x_1^2 x_3 \alpha_1^4 \alpha_3^3 + 17751080 \alpha_2^7 x_1^2 x_3 \alpha_3^3 \alpha_1^2 \\
& + 117900 \alpha_2^2 x_1^2 x_3 \alpha_1^8 \alpha_3^3 - 6480 \alpha_2^2 x_1^2 x_3 \alpha_1^9 \alpha_3^2 + 164025 \alpha_2^7 x_1^2 x_3 \alpha_3^5 \\
& - 7920 \alpha_2^5 x_1^2 x_3 \alpha_1^7 - 147940 \alpha_2^7 x_1^2 x_3 \alpha_1^5 + 19440 \alpha_2^2 x_4^3 \alpha_1^7 \alpha_3^2 \\
& + 52920 \alpha_2^2 x_4^3 \alpha_3^6 \alpha_1^3 + 3333075 \alpha_2^7 x_1^2 x_3 \alpha_1^4 \alpha_3 - 10423115 \alpha_2^9 x_1^2 x_3 \alpha_3^2 \alpha_1 \\
& - 4273350 \alpha_2^7 x_1^2 x_3 \alpha_3^4 \alpha_1 - 385180 \alpha_2^3 x_1^2 x_3 \alpha_1^7 \alpha_3^2 + 615420 \alpha_2^2 x_1^2 x_3 \alpha_1^4 \alpha_3^7 \\
& + 5214375 \alpha_2^5 x_1^2 x_3 \alpha_3^5 \alpha_1^2 - 2898880 \alpha_2^3 x_1^2 x_3 \alpha_3^6 \alpha_1^3 \\
& - 15919055 \alpha_2^5 x_1^2 x_3 \alpha_1^3 \alpha_3^4 + 415220 \alpha_2^5 x_1^2 x_3 \alpha_1^6 \alpha_3 - 2160 \alpha_2^2 x_1^2 x_3 \alpha_1^2 \alpha_3^9 \\
& + 14400 \alpha_2^3 x_1^2 x_3 \alpha_1^8 \alpha_3 - 4737375 \alpha_2^5 x_1^2 x_3 \alpha_1^5 \alpha_3^2 + 7430830 \alpha_2^3 x_1^2 x_3 \alpha_1^4 \alpha_3^5 \\
& - 683460 \alpha_2^2 x_1^2 x_3 \alpha_1^7 \alpha_3^4 + 1476840 \alpha_2^2 x_1^2 x_3 \alpha_1^6 \alpha_3^5 + 1620 \alpha_2^5 x_1^2 x_3 \alpha_3^7 \\
& + 9285450 \alpha_2^6 x_2 \alpha_1^3 \alpha_3^5 - 10250 \alpha_2^4 x_2 \alpha_1^4 \alpha_3^5 + 1260700 \alpha_2^2 x_2 \alpha_1^7 \alpha_3^4 \\
& - 1006350 \alpha_2^2 x_2 \alpha_1^6 \alpha_3^5 - 130000 \alpha_2^{12} x_2 \alpha_3^3 - 3816 \alpha_2^4 x_2 \alpha_1^6 \alpha_3^2
\end{aligned}$$

$$\begin{aligned}
& + 28100 \alpha_2^2 x_2^3 \alpha_1^5 \alpha_3^6 - 41400 \alpha_2^4 x_2^3 \alpha_1^8 \alpha_3 - 900 \alpha_2^8 x_2^3 \alpha_3^5 \\
& + 88356 \alpha_2^6 x_2^3 \alpha_1^2 \alpha_3^4 + 81542 \alpha_2^8 x_2^3 \alpha_1^3 \alpha_3 - 81508 \alpha_2^6 x_2^3 \alpha_1^4 \alpha_3^2 \\
& - 504 \alpha_2^4 x_2^3 \alpha_3^7 \alpha_1 - 304038 \alpha_2^8 x_2^3 \alpha_1^2 \alpha_3^2 + 195348 \alpha_2^6 x_2^3 \alpha_1^3 \alpha_3^3 \\
& - 44966 \alpha_2^4 x_2^3 \alpha_1^4 \alpha_3^4 + 196856 \alpha_2^{10} x_2^3 \alpha_1 \alpha_3 - 4500 \alpha_2^2 x_2^3 \alpha_1^3 \alpha_3^8 \\
& + 7128 \alpha_2^6 x_2^3 \alpha_1^5 \alpha_3 + 1440 x_1^2 x_4^2 \alpha_2^2 \alpha_3^9 \alpha_1 - 26352 \alpha_2^{10} x_2^3 \alpha_1^2 - 3312 \alpha_2^8 x_2^3 \alpha_1^4 \\
& + 504 \alpha_2^6 x_2^3 \alpha_3^6 - 21700 \alpha_2^{10} x_2^3 \alpha_3^3 + 1889650 \alpha_2^{10} x_2^3 \alpha_1^3 + 455000 \alpha_2^{12} x_2^3 \alpha_1 \\
& + 16036910 x_1^2 x_4^2 \alpha_2^6 \alpha_1^3 \alpha_3^3 - 5451095 x_1^2 x_4^2 \alpha_2^4 \alpha_1^4 \alpha_3^4 \\
& + 14781360 x_1^2 x_4^2 \alpha_2^{10} \alpha_1 \alpha_3 + 1094100 x_1^2 x_4^2 \alpha_2^4 \alpha_1^6 \alpha_3^2 - 720 x_1^2 x_4^2 \alpha_2^4 \alpha_3^8 \\
& - 720 x_1^2 x_4^2 \alpha_1^2 \alpha_3^{10} - 22324 \alpha_2^6 x_2^3 \alpha_3^5 \alpha_1 + 9902 \alpha_2^4 x_2^3 \alpha_1^2 \alpha_3^6 \\
& + 26318 \alpha_2^4 x_2^3 \alpha_1^5 \alpha_3^3 - 21494 \alpha_2^4 x_2^3 \alpha_1^3 \alpha_3^5 - 117270 \alpha_2^8 x_2^3 \alpha_1 \alpha_3^3 \\
& - 43200 \alpha_2^{12} x_2^3 + 3600 x_1^2 x_4^2 \alpha_2^4 \alpha_1^8 - 5760 x_1^2 x_4^2 \alpha_2^2 \alpha_1^9 \alpha_3 - 30300 x_1^2 x_4^2 \alpha_1^9 \alpha_3^3 \\
& + 2160 x_1^2 x_4^2 \alpha_1^{10} \alpha_3^2 + 208280 x_1^2 x_4^2 \alpha_2^8 \alpha_1^4 + 85120 x_1^2 x_4^2 \alpha_1^6 \alpha_3^6 \\
& + 115840 x_1^2 x_4^2 \alpha_1^8 \alpha_3^4 - 817840 x_1^2 x_4^2 \alpha_2^6 \alpha_1^5 \alpha_3 - 137300 x_1^2 x_4^2 \alpha_1^7 \alpha_2^4 \alpha_3 \\
& + 114820 x_1^2 x_4^2 \alpha_1^8 \alpha_3^2 \alpha_2^2 - 1352680 x_1^2 x_4^2 \alpha_2^6 \alpha_1^4 \alpha_3^2 + 1976445 x_1^2 x_4^2 \alpha_2^8 \alpha_1^3 \alpha_3 \\
& + 52780 x_1^2 x_4^2 \alpha_1^6 \alpha_2^6 + 35880 x_1^2 x_4^2 \alpha_2^4 \alpha_3^7 \alpha_1 + 777370 x_1^2 x_4^2 \alpha_2^6 \alpha_3^5 \alpha_1 \\
& - 809470 x_1^2 x_4^2 \alpha_2^{10} \alpha_1^2 + 322980 x_1^2 x_4^2 \alpha_1^3 \alpha_3^7 \alpha_2^2 + 6239455 x_1^2 x_4^2 \alpha_2^8 \alpha_3^3 \alpha_1 \\
& - 774585 x_1^2 x_4^2 \alpha_2^4 \alpha_3^6 \alpha_1^2 - 22015015 x_1^2 x_4^2 \alpha_2^8 \alpha_3^2 \alpha_1^2 \\
& - 7613180 x_1^2 x_4^2 \alpha_2^6 \alpha_3^4 \alpha_1^2 - 918820 x_1^2 x_4^2 \alpha_1^4 \alpha_3^6 \alpha_2^2 - 600380 x_1^2 x_4^2 \alpha_1^7 \alpha_3^3 \alpha_2^2 \\
& + 4193415 x_1^2 x_4^2 \alpha_2^4 \alpha_3^5 \alpha_1^3 - 249695 x_1^2 x_4^2 \alpha_1^5 \alpha_3^3 \alpha_2^4 + 608100 x_1^2 x_4^2 \alpha_1^6 \alpha_3^4 \alpha_2^2 \\
& - 32100 x_1^2 x_4^2 \alpha_1^2 \alpha_3^8 \alpha_2^2 - 219480 \alpha_2^3 x_1 x_4 x_2 \alpha_1^5 \alpha_3^4 - 667960 \alpha_2^3 x_1 x_4 x_2 \alpha_1^6 \alpha_3^3 \\
& + 3199460 \alpha_2^7 x_1 x_4 x_2 \alpha_3^2 \alpha_1^3 - 8800 \alpha_2^3 x_1 x_4 x_2 \alpha_3^7 \alpha_1^2 + 1440 \alpha_2^3 x_1 x_4 x_2 \alpha_3^8 \alpha_1 \\
& + 42800 \alpha_2^5 x_1 x_4 x_2 \alpha_3^6 \alpha_1 - 3596290 \alpha_2^9 x_1 x_4 x_2 \alpha_1^2 \alpha_3 - 50040 \alpha_2 x_1 x_4 x_2 \alpha_1^8 \alpha_3^3 \\
& + 12960 \alpha_2 x_1 x_4 x_2 \alpha_1^9 \alpha_3^2 + 1385800 \alpha_2^{11} x_1 x_4 x_2 \alpha_1 + 624820 \alpha_2^7 x_1 x_4 x_2 \alpha_3^3 \alpha_1^2 \\
& - 27880 \alpha_2^7 x_1 x_4 x_2 \alpha_3^5 + 27360 \alpha_2^5 x_1 x_4 x_2 \alpha_1^7 + 295360 \alpha_2^7 x_1 x_4 x_2 \alpha_1^5 \\
& + 509720 x_1^2 x_4^2 \alpha_1^5 \alpha_3^5 \alpha_2^2 - 568400 \alpha_2^5 x_1 x_4 x_2 \alpha_1^6 \alpha_3 - 891170 \alpha_2^5 x_1 x_4 x_2 \alpha_1^4 \alpha_3^3 \\
& - 172700 x_1^2 x_4^2 \alpha_1^7 \alpha_3^5 + 17650 \alpha_2^5 x_1 x_4 x_2 \alpha_3^5 \alpha_1^2 - 158160 \alpha_2^3 x_1 x_4 x_2 \alpha_3^6 \alpha_1^3 \\
& - 851650 \alpha_2^5 x_1 x_4 x_2 \alpha_1^3 \alpha_3^4 + 147940 \alpha_2^7 x_1 x_4 x_2 \alpha_3^4 \alpha_1 \\
& + 323080 \alpha_2^3 x_1 x_4 x_2 \alpha_1^7 \alpha_3^2 + 72360 \alpha_2 x_1 x_4 x_2 \alpha_1^4 \alpha_3^7 - 1440 \alpha_2^5 x_1 x_4 x_2 \alpha_3^7
\end{aligned}$$

$$\begin{aligned}
& + 121680 \alpha_2 x_1 x_4 x_2 \alpha_1^6 \alpha_3^5 - 2906180 \alpha_2^7 x_1 x_4 x_2 \alpha_1^4 \alpha_3 - 437730 \alpha_2^9 x_1 x_4 x_2 \alpha_3^2 \alpha_1 \\
& - 960000 \alpha_2^{13} x_1^3 + 2346130 \alpha_2^5 x_1 x_4 x_2 \alpha_1^5 \alpha_3^2 + 631960 \alpha_2^3 x_1 x_4 x_2 \alpha_1^4 \alpha_3^5 \\
& + 18360 \alpha_2 x_1 x_4 x_2 \alpha_1^7 \alpha_3^4 + 201800 \alpha_2^{11} x_1 x_4 x_2 \alpha_3 - 169200 \alpha_2 x_1 x_4 x_2 \alpha_1^5 \alpha_3^6 \\
& - 40320 \alpha_2^3 x_1 x_4 x_2 \alpha_1^8 \alpha_3 - 3947000 x_1^2 x_4 \alpha_2^{12} + 385975 \alpha_2^4 x_4 x_2^2 \alpha_1^6 \alpha_3^2 \\
& + 1209650 \alpha_2^9 x_1 x_4 x_2 \alpha_1^3 - 558110 \alpha_2^6 x_4 x_2^2 \alpha_1^5 \alpha_3 - 6120 \alpha_2 x_1 x_4 x_2 \alpha_1^3 \alpha_3^8 \\
& - 79790 \alpha_2^9 x_1 x_4 x_2 \alpha_3^3 - 40860 \alpha_2^4 x_4 x_2^2 \alpha_1^7 \alpha_3 + 15120 \alpha_2^2 x_4 x_2^2 \alpha_1^8 \alpha_3^2 \\
& - 5760 \alpha_2^4 x_4 x_2^2 \alpha_3^7 \alpha_1 + 720 \alpha_2^2 x_4 x_2^2 \alpha_1^2 \alpha_3^8 - 1653615 \alpha_2^8 x_4 x_2^2 \alpha_1^2 \alpha_3^2 \\
& + 936790 \alpha_2^6 x_4 x_2^2 \alpha_1^3 \alpha_3^3 + 10385 \alpha_2^4 x_4 x_2^2 \alpha_1^4 \alpha_3^4 + 830320 \alpha_2^{10} x_4 x_2^2 \alpha_1 \alpha_3 \\
& - 104880 \alpha_2^2 x_4 x_2^2 \alpha_1^5 \alpha_3^5 + 190760 \alpha_2^2 x_4 x_2^2 \alpha_1^6 \alpha_3^4 - 612395 \alpha_2^8 x_4 x_2^2 \alpha_1 \alpha_3^3 \\
& + 344260 \alpha_2^6 x_4 x_2^2 \alpha_1^2 \alpha_3^4 - 2183705 \alpha_2^8 x_4 x_2^2 \alpha_1^3 \alpha_3 - 6600 \alpha_2^2 x_4 x_2^2 \alpha_1^4 \alpha_3^6 \\
& + 2193240 \alpha_2^6 x_4 x_2^2 \alpha_1^4 \alpha_3^2 - 90420 \alpha_2^2 x_4 x_2^2 \alpha_1^7 \alpha_3^3 + 262555 \alpha_2^8 x_4 x_2^2 \alpha_1^4 \\
& + 5040 \alpha_2^6 x_4 x_2^2 \alpha_3^6 + 25740 \alpha_2^6 x_4 x_2^2 \alpha_1^6 + 10700 x_1^2 x_4 \alpha_1^3 \alpha_3^9 \\
& - 283365 x_1^2 x_4 \alpha_2^8 \alpha_3^4 - 1933170 x_1^2 x_4 \alpha_2^{10} \alpha_3^2 - 14480 x_1^2 x_4 \alpha_2^6 \alpha_3^6 \\
& + 32300 x_1^2 x_4 \alpha_1^5 \alpha_3^7 - 42400 x_1^2 x_4 \alpha_1^4 \alpha_3^8 - 32866575 \alpha_2^7 x_1 x_4 \alpha_3^2 \alpha_1^3 \\
& + 58140 \alpha_2^4 x_4 x_2^2 \alpha_1^2 \alpha_3^6 - 1031205 \alpha_2^4 x_4 x_2^2 \alpha_1^5 \alpha_3^3 - 48675 \alpha_2^4 x_4 x_2^2 \alpha_1^3 \alpha_3^5 \\
& + 55800 \alpha_2^3 x_1 x_4 \alpha_3^7 \alpha_1^2 - 63000 \alpha_2^5 x_1 x_4 \alpha_3^6 \alpha_1 + 22549700 \alpha_2^9 x_1 x_4 \alpha_1^2 \alpha_3 \\
& - 7088375 \alpha_2^3 x_1 x_4 \alpha_1^5 \alpha_3^4 + 8869725 \alpha_2^7 x_1 x_4 \alpha_3^3 \alpha_1^2 - 112800 \alpha_2 x_1 x_4 \alpha_1^8 \alpha_3^3 \\
& + 6536 \alpha_2^3 x_1 \alpha_1^8 \alpha_3^3 - 136572 \alpha_2^3 x_1 \alpha_3^7 \alpha_1^2 + 10452 \alpha_2^3 x_1 \alpha_3^8 \alpha_1 \\
& + 150918 \alpha_2^5 x_1 \alpha_3^6 \alpha_1 + 175868 \alpha_2^9 x_1 \alpha_1^3 \alpha_3^2 + 384838 \alpha_2^3 x_1 \alpha_1^3 \alpha_3^5 \alpha_4 \\
& + 48470 \alpha_2^3 x_1 \alpha_1^6 \alpha_3^3 + 141290 \alpha_2^7 x_1 \alpha_3^2 \alpha_1^3 - 576 \alpha_2 x_1 \alpha_1^9 \alpha_3^2 \\
& - 316400 \alpha_2^{11} x_1^3 \alpha_3 - 101600 \alpha_2^{11} x_1^3 \alpha_1 - 5766 \alpha_2^5 x_1^3 \alpha_3^7 - 55904 \alpha_2^7 x_1^3 \alpha_3^5 \\
& - 576 \alpha_2^5 x_1^3 \alpha_1^7 - 10280 \alpha_2^7 x_1^3 \alpha_1^5 + 216 \alpha_2 x_1^3 \alpha_3^{10} \alpha_1 - 96758 \alpha_2^3 x_1^3 \alpha_1^6 \alpha_3^5 \\
& + 147010 \alpha_2^7 x_1^3 \alpha_1^4 \alpha_3 + 1358840 \alpha_2^9 x_1^3 \alpha_3^2 \alpha_1 + 835942 \alpha_2^7 x_1^3 \alpha_3^4 \alpha_1 \\
& - 23064 \alpha_2^3 x_1^3 \alpha_1^7 \alpha_3^2 - 157092 \alpha_2 x_1^3 \alpha_1^4 \alpha_3^7 - 1130348 \alpha_2^5 x_1^3 \alpha_3^5 \alpha_1^2 \\
& + 685574 \alpha_2^3 x_1^3 \alpha_3^6 \alpha_1^3 + 2257688 \alpha_2^5 x_1^3 \alpha_1^3 \alpha_3^4 + 26808 \alpha_2^5 x_1^3 \alpha_1^6 \alpha_3 \\
& - 503638 \alpha_2^5 x_1^3 \alpha_1^4 \alpha_3^3 - 2428954 \alpha_2^7 x_1^3 \alpha_3^3 \alpha_1^2 + 8431125 \alpha_2^7 x_1^3 \alpha_1^3 \alpha_3^3 \\
& - 3321525 \alpha_2^5 x_1^3 \alpha_1^4 \alpha_3^4 + 39600 \alpha_2 x_1^3 \alpha_1^6 \alpha_3^6 - 192600 \alpha_2^3 x_1^3 \alpha_1^8 \alpha_3^4 \\
& + 4977300 \alpha_2^{11} x_1^3 \alpha_1 \alpha_3 + 41558 \alpha_2 x_1^3 \alpha_1^3 \alpha_3^8 + 214660 \alpha_2 x_1^3 \alpha_1^5 \alpha_3^6
\end{aligned}$$

$$\begin{aligned}
& -4686 \alpha_2 x_1^3 \alpha_1^2 \alpha_3^9 + 1152 \alpha_2^3 x_1^3 \alpha_1^8 \alpha_3 - 137774 \alpha_2^5 x_1^3 \alpha_1^5 \alpha_3^2 \\
& - 1085834 \alpha_2^3 x_1^3 \alpha_1^4 \alpha_3^5 - 3858 \alpha_2 x_1^3 \alpha_1^7 \alpha_3^4 - 234076 \alpha_2^9 x_1^3 \alpha_3^3 \\
& + 117900 \alpha_2 x_1^3 \alpha_1^9 \alpha_3^3 - 10800 \alpha_2 x_1^3 \alpha_1^{10} \alpha_3^2 + 138375 \alpha_2^7 x_1^3 \alpha_1^5 \alpha_3 \\
& - 553275 \alpha_2^5 x_1^3 \alpha_1^6 \alpha_3^2 + 27975 \alpha_2^9 x_1^3 \alpha_1^4 - 375300 \alpha_2^3 x_1^3 \alpha_1^8 \alpha_3^2 \\
& + 52200 \alpha_2 x_1^3 \alpha_1^7 \alpha_3^5 + 10884375 \alpha_2^7 x_1^3 \alpha_1^4 \alpha_3^2 - 8245725 \alpha_2^9 x_1^3 \alpha_1^3 \alpha_3^3 \\
& + 21600 \alpha_2^3 x_1^3 \alpha_1^9 \alpha_3 - 53848 \alpha_2^9 x_1^3 \alpha_1^3 + 9900 \alpha_2 x_1^3 \alpha_1^5 \alpha_3^7 \\
& + 1248225 \alpha_2^3 x_1^3 \alpha_1^6 \alpha_3^4 + 116100 \alpha_2^3 x_1^3 \alpha_1^3 \alpha_3^7 + 1977525 \alpha_2^9 x_1^3 \alpha_3^3 \alpha_1 \\
& - 16200 \alpha_2 x_1^3 \alpha_1^4 \alpha_3^8 - 243000 \alpha_2^5 x_1^3 \alpha_3^6 \alpha_1^2 + 202500 \alpha_2^7 x_1^3 \alpha_3^5 \alpha_1 \\
& + 396900 \alpha_2^5 x_1^3 \alpha_1^7 \alpha_3 - 6258975 \alpha_2^5 x_1^3 \alpha_1^5 \alpha_3^3 + 22065150 x_1^2 x_2 \alpha_1^6 \alpha_2^4 \alpha_3^3 \\
& + 6944400 x_1^2 x_2 \alpha_1^6 \alpha_2^2 \alpha_3^5 - 19800 x_1^2 x_2 \alpha_2^8 \alpha_3^5 - 207100 x_1^2 x_2 \alpha_2^{10} \alpha_3^3 \\
& + 83312 x_1^2 x_2 \alpha_2^6 \alpha_1^5 \alpha_3 - 82696 x_1^2 x_2 \alpha_2^4 \alpha_1^6 \alpha_3^2 + 257844 x_1^2 x_2 \alpha_2^6 \alpha_1^3 \alpha_3^3 \\
& + 138194 x_1^2 x_2 \alpha_2^4 \alpha_1^4 \alpha_3^4 + 888376 x_1^2 x_2 \alpha_2^{10} \alpha_1 \alpha_3 - 648 x_1^2 x_2 \alpha_2^2 \alpha_3^9 \alpha_1 \\
& - 6695550 x_1^2 x_2 \alpha_1^3 \alpha_2^{10} - 81552 x_1^2 x_2 \alpha_1^3 \alpha_3^7 \alpha_2^2 - 618982 x_1^2 x_2 \alpha_2^8 \alpha_3^3 \alpha_1 \\
& + 265166 x_1^2 x_2 \alpha_2^4 \alpha_3^6 \alpha_1^2 - 31212 x_1^2 x_2 \alpha_2^4 \alpha_3^7 \alpha_1 - 289564 x_1^2 x_2 \alpha_2^6 \alpha_3^5 \alpha_1 \\
& + 4032 x_1^2 x_2 \alpha_1^7 \alpha_2^4 \alpha_3 - 2160 x_1^2 x_2 \alpha_1^8 \alpha_3^2 \alpha_2^2 - 572026 x_1^2 x_2 \alpha_2^6 \alpha_1^4 \alpha_3^2 \\
& + 14274 x_1^2 x_2 \alpha_1^2 \alpha_3^8 \alpha_2^2 + 458102 x_1^2 x_2 \alpha_2^8 \alpha_1^3 \alpha_3 + 2528700 x_1^2 x_2 \alpha_1^6 \alpha_2^6 \alpha_3 \\
& - 454000 x_1^2 x_2 \alpha_2^{12} \alpha_3 + 370275 \alpha_2^3 x_1^3 \alpha_1^5 \alpha_3^5 + 579525 \alpha_2^3 x_1^3 \alpha_1^7 \alpha_3^3 \\
& - 9536775 \alpha_2^9 x_1^3 \alpha_3^2 \alpha_1^2 - 3022875 \alpha_2^7 x_1^3 \alpha_3^4 \alpha_1^2 - 520425 \alpha_2^3 x_1^3 \alpha_1^4 \alpha_3^6 \\
& + 2033475 \alpha_2^5 x_1^3 \alpha_3^5 \alpha_1^3 - 930342 x_1^2 x_2 \alpha_2^8 \alpha_3^2 \alpha_1^2 + 987752 x_1^2 x_2 \alpha_2^6 \alpha_3^4 \alpha_1^2 \\
& + 176772 x_1^2 x_2 \alpha_1^4 \alpha_3^6 \alpha_2^2 - 688590 x_1^2 x_2 \alpha_2^4 \alpha_3^5 \alpha_1^3 + 312282 x_1^2 x_2 \alpha_1^5 \alpha_3^3 \alpha_2^4 \\
& - 62886 x_1^2 x_2 \alpha_1^6 \alpha_3^4 \alpha_2^2 - 283200 x_1^2 x_2 \alpha_2^{12} - 21600 x_1^2 x_2 \alpha_1^{10} \alpha_2^2 \alpha_3 \\
& - 70872 x_1^2 x_2 \alpha_1^5 \alpha_3^5 \alpha_2^2 + 27072 x_1^2 x_2 \alpha_1^7 \alpha_3^3 \alpha_2^2 - 1914700 x_1^2 x_2 \alpha_1^5 \alpha_2^2 \alpha_3^6 \\
& - 24077000 x_1^2 x_2 \alpha_1^5 \alpha_2^4 \alpha_3^4 - 34497450 x_1^2 x_2 \alpha_1^5 \alpha_2^6 \alpha_3^2 + 10800 x_1^2 x_2 \alpha_1^9 \alpha_2^4 \\
& - 111900 x_1^2 x_2 \alpha_1^{10} \alpha_3^3 + 387300 x_1^2 x_2 \alpha_1^6 \alpha_3^7 + 105950 x_1^2 x_2 \alpha_2^8 \alpha_3^4 \\
& + 143048 x_1^2 x_2 \alpha_2^{10} \alpha_3^2 + 16938 x_1^2 x_2 \alpha_2^6 \alpha_3^6 - 135472 x_1^2 x_2 \alpha_2^{10} \alpha_1^2 \\
& - 1872 x_1^2 x_2 \alpha_1^6 \alpha_2^6 - 27688 x_1^2 x_2 \alpha_2^8 \alpha_1^4 + 648 x_1^2 x_2 \alpha_2^4 \alpha_3^8 \\
& + 92100 x_1^2 x_2 \alpha_1^7 \alpha_2^6 + 104100 x_1^2 x_2 \alpha_1^9 \alpha_3^4 + 39959000 x_1^2 x_2 \alpha_1^4 \alpha_2^6 \alpha_3^3 \\
& + 24677050 x_1^2 x_2 \alpha_1^4 \alpha_2^8 \alpha_3 + 3049450 x_1^2 x_2 \alpha_1^4 \alpha_2^4 \alpha_3^5 + 94900 x_1^2 x_2 \alpha_1^4 \alpha_2^2 \alpha_3^7
\end{aligned}$$

$$\begin{aligned}
& -35610600 x_1^2 x_2 \alpha_1^3 \alpha_2^8 \alpha_3^2 + 7200 x_1^2 x_2 \alpha_1^3 \alpha_2^2 \alpha_3^8 - 1109750 x_1^2 x_2 \alpha_1^3 \alpha_2^6 \alpha_3^4 \\
& + 1702250 x_1^2 x_2 \alpha_1 \alpha_2^{10} \alpha_3^2 + 445300 x_1^2 x_2 \alpha_1^3 \alpha_2^4 \alpha_3^6 - 296100 x_1^2 x_2 \alpha_1^8 \alpha_2^4 \alpha_3 \\
& + 442300 x_1^2 x_2 \alpha_1^8 \alpha_2^2 \alpha_3^3 + 315900 x_1^2 x_2 \alpha_1^9 \alpha_2^2 \alpha_3^2 - 5868400 x_1^2 x_2 \alpha_1^7 \alpha_2^2 \alpha_3^4 \\
& - 2136000 x_1^2 x_2 \alpha_1^7 \alpha_2^4 \alpha_3^2 - 84300 x_1^2 x_2 \alpha_1^5 \alpha_3^8 - 939100 x_1^2 x_2 \alpha_1^5 \alpha_2^8 \\
& + 30696 \alpha_2^3 x_1 x_2^2 \alpha_1^6 \alpha_3^3 - 188198 \alpha_2^7 x_1 x_2^2 \alpha_3^2 \alpha_1^3 - 630600 x_1^2 x_2 \alpha_1^7 \alpha_3^6 \\
& + 936 \alpha_2^3 x_1 x_2^2 \alpha_3^8 \alpha_1 + 47980 \alpha_2^5 x_1 x_2^2 \alpha_3^6 \alpha_1 + 113484 \alpha_2^9 x_1 x_2^2 \alpha_1^2 \alpha_3 \\
& - 3299000 x_1^2 x_2 \alpha_1 \alpha_2^{12} - 1062750 \alpha_2^7 x_1 x_2^2 \alpha_3^3 \alpha_1^2 - 936 \alpha_2^5 x_1 x_2^2 \alpha_3^7 \\
& - 26042 \alpha_2^7 x_1 x_2^2 \alpha_3^5 - 3744 \alpha_2^7 x_1 x_2^2 \alpha_1^5 + 5400 x_1^2 x_2 \alpha_1^4 \alpha_3^9 \\
& + 319200 x_1^2 x_2 \alpha_1^8 \alpha_3^5 + 10800 x_1^2 x_2 \alpha_3^2 \alpha_1^{11} - 351272 \alpha_2^5 x_1 x_2^2 \alpha_3^5 \alpha_1^2 \\
& + 101174 \alpha_2^3 x_1 x_2^2 \alpha_3^6 \alpha_1^3 + 637412 \alpha_2^5 x_1 x_2^2 \alpha_1^3 \alpha_3^4 + 8064 \alpha_2^5 x_1 x_2^2 \alpha_1^6 \alpha_3 \\
& - 22880 \alpha_2^{11} x_1 x_2^2 \alpha_1 - 144718 \alpha_2^3 x_1 x_2^2 \alpha_1^4 \alpha_3^5 + 85552 \alpha_2^7 x_1 x_2^2 \alpha_1^4 \alpha_3 \\
& + 795736 \alpha_2^9 x_1 x_2^2 \alpha_3^2 \alpha_1 + 405502 \alpha_2^7 x_1 x_2^2 \alpha_3^4 \alpha_1 - 89792 \alpha_2^5 x_1 x_2^2 \alpha_1^5 \alpha_3^2 \\
& - 4320 \alpha_2^3 x_1 x_2^2 \alpha_1^7 \alpha_3^2 + 128544 \alpha_2^5 x_1 x_2^2 \alpha_1^4 \alpha_3^3 - 21938 \alpha_2^3 x_1 x_2^2 \alpha_3^7 \alpha_1^2 \\
& - 30950 \alpha_2^3 x_1 x_2^2 \alpha_1^5 \alpha_3^4 - 50400 x_1^2 x_2 \alpha_1^2 \alpha_2^4 \alpha_3^7 + 16713800 x_1^2 x_2 \alpha_1^2 \alpha_2^{10} \alpha_3 \\
& + 57600 x_1^2 x_2 \alpha_1^6 \alpha_2^6 \alpha_3^6 + 796400 x_1^2 x_2 \alpha_1^8 \alpha_2^4 \alpha_3^4 + 12498225 \alpha_2^5 x_1 x_2^2 \alpha_1^6 \alpha_3^2 \\
& - 19409875 \alpha_2^7 x_1 x_2^2 \alpha_1^3 \alpha_3^3 + 16345675 \alpha_2^5 x_1 x_2^2 \alpha_1^4 \alpha_3^4 \\
& + 1520800 \alpha_2 x_1 x_2^2 \alpha_1^6 \alpha_3^6 + 1987600 \alpha_2 x_1 x_2^2 \alpha_1^8 \alpha_3^4 - 3762700 \alpha_2^{11} x_1 x_2^2 \alpha_1 \alpha_3 \\
& - 155404 \alpha_2^9 x_1 x_2^2 \alpha_3^3 - 26456 \alpha_2^9 x_1 x_2^2 \alpha_1^3 - 225680 \alpha_2^{11} x_1 x_2^2 \alpha_3 \\
& + 5495175 \alpha_2^7 x_1 x_2^2 \alpha_1^4 \alpha_3^2 + 2431875 \alpha_2^9 x_1 x_2^2 \alpha_1^3 \alpha_3 - 72000 \alpha_2^3 x_1 x_2^2 \alpha_1^9 \alpha_3 \\
& - 542200 \alpha_2 x_1 x_2^2 \alpha_1^9 \alpha_3^3 + 36000 \alpha_2 x_1 x_2^2 \alpha_1^{10} \alpha_3^2 - 8537425 \alpha_2^7 x_1 x_2^2 \alpha_1^5 \alpha_3 \\
& + 240000 \alpha_2^{13} x_1 x_2^2 - 79500 \alpha_2^7 x_1 x_2^2 \alpha_3^5 \alpha_1 - 1819200 \alpha_2^5 x_1 x_2^2 \alpha_1^7 \alpha_3 \\
& + 1722900 \alpha_2^3 x_1 x_2^2 \alpha_1^8 \alpha_3^2 - 2739600 \alpha_2 x_1 x_2^2 \alpha_1^7 \alpha_3^5 - 75300 \alpha_2^3 x_1 x_2^2 \alpha_1^3 \alpha_3^7 \\
& - 1310875 \alpha_2^9 x_1 x_2^2 \alpha_3^3 \alpha_1 + 15600 \alpha_2 x_1 x_2^2 \alpha_1^4 \alpha_3^8 + 121500 \alpha_2^5 x_1 x_2^2 \alpha_3^6 \alpha_1^2 \\
& + 12615225 \alpha_2^9 x_1 x_2^2 \alpha_3^2 \alpha_1^2 + 2989525 \alpha_2^7 x_1 x_2^2 \alpha_3^4 \alpha_1^2 \\
& + 1489375 \alpha_2^3 x_1 x_2^2 \alpha_1^4 \alpha_3^6 - 8136475 \alpha_2^3 x_1 x_2^2 \alpha_1^7 \alpha_3^3 \\
& - 3078225 \alpha_2^5 x_1 x_2^2 \alpha_3^5 \alpha_1^3 - 278200 \alpha_2 x_1 x_2^2 \alpha_1^5 \alpha_3^7 - 14201175 \alpha_2^5 x_1 x_2^2 \alpha_1^5 \alpha_3^3 \\
& + 10719825 \alpha_2^3 x_1 x_2^2 \alpha_1^6 \alpha_3^4 + 17700 \alpha_2^9 x_1 x_2^2 \alpha_3^4 + 188400 \alpha_2^{11} x_1 x_2^2 \alpha_3^2 \\
& - 1706100 \alpha_2^{11} x_1 x_2^2 \alpha_1^2 + 36000 \alpha_2^5 x_1 x_2^2 \alpha_1^8 + 638500 \alpha_2^7 x_1 x_2^2 \alpha_1^6
\end{aligned}$$



$$\begin{aligned}
& +2188075 \alpha_2^9 x_1 x_2^2 \alpha_1^4 - 7549125 \alpha_2^3 x_1 x_2^2 \alpha_1^5 \alpha_3^5 + 4431650 \alpha_2^4 x_2^3 \alpha_1^5 \alpha_3^4 \\
& - 5588950 \alpha_2^4 x_2^3 \alpha_1^6 \alpha_3^3 + 6594750 \alpha_2^8 x_2^3 \alpha_3^2 \alpha_1^3 + 20700 \alpha_2^6 x_2^3 \alpha_1^7 \\
& + 420575 \alpha_2^8 x_2^3 \alpha_1^5 - 216 \alpha_2^3 x_1^3 \alpha_3^9 - 59400 \alpha_2^9 x_1^3 \alpha_3^4 - 477600 \alpha_2^{11} x_1^3 \alpha_3^2 \\
& + 2319900 \alpha_2^{11} x_1^3 \alpha_1^2 - 10800 \alpha_2^5 x_1^3 \alpha_1^8 - 139500 \alpha_2^7 x_1^3 \alpha_1^6 \\
& + 20700 \alpha_2^2 x_2^3 \alpha_1^9 \alpha_3^2 + 8100 \alpha_2^4 x_2^3 \alpha_3^7 \alpha_1^2 - 2700 \alpha_2^6 x_2^3 \alpha_3^6 \alpha_1 \\
& - 2770400 \alpha_2^{10} x_2^3 \alpha_1^2 \alpha_3 - 1187925 \alpha_2^6 x_2^3 \alpha_1^6 \alpha_3 - 7704650 \alpha_2^6 x_2^3 \alpha_1^4 \alpha_3^3 \\
& - 100550 \alpha_2^8 x_2^3 \alpha_3^3 \alpha_1^2 - 346775 \alpha_2^2 x_2^3 \alpha_1^8 \alpha_3^3 - 6846850 \alpha_2^8 x_2^3 \alpha_1^4 \alpha_3 \\
& + 268250 \alpha_2^{10} x_2^3 \alpha_3^2 \alpha_1 - 13625 \alpha_2^8 x_2^3 \alpha_3^4 \alpha_1 + 1114125 \alpha_2^4 x_2^3 \alpha_1^7 \alpha_3^2 \\
& + 48125 \alpha_2^2 x_2^3 \alpha_1^4 \alpha_3^7 + 140475 \alpha_2^6 x_2^3 \alpha_3^5 \alpha_1^2 - 153275 \alpha_2^4 x_2^3 \alpha_3^6 \alpha_1^3 \\
& - 55550 \alpha_2^6 x_2^3 \alpha_1^3 \alpha_3^4 - 1660550 x_1^2 x_2^2 \alpha_1^2 \alpha_2^8 \alpha_3^3 - 1045200 x_1^2 x_2^2 \alpha_1^2 \alpha_2^6 \alpha_3^5) \\
& / ((4 \alpha_1^2 - 17 \alpha_1 \alpha_3 + 4 \alpha_3^2 + 25 \alpha_2^2)(9 \alpha_1^6 - 118 \alpha_1^5 \alpha_3 + 391 \alpha_1^4 \alpha_3^2 \\
& + 172 \alpha_2^2 \alpha_1^4 - 1200 \alpha_2^2 \alpha_1^3 \alpha_3 - 564 \alpha_1^3 \alpha_3^3 + 391 \alpha_1^2 \alpha_3^4 + 944 \alpha_2^4 \alpha_1^2 \\
& + 2056 \alpha_2^2 \alpha_1^2 \alpha_3^2 - 1200 \alpha_2^2 \alpha_1 \alpha_3^3 - 2912 \alpha_2^4 \alpha_1 \alpha_3 - 118 \alpha_1 \alpha_3^5 + 9 \alpha_3^6 \\
& + 1600 \alpha_2^6 + 944 \alpha_2^4 \alpha_3^2 + 172 \alpha_2^2 \alpha_3^4)(\alpha_1^2 \alpha_3^2 - 2 \alpha_2^2 \alpha_1 \alpha_3 + \alpha_2^4)(-\alpha_2^2 + \alpha_1 \alpha_3)), \\
& \frac{1}{96} \beta^2 (-178624 \alpha_2^4 x_3^3 \alpha_1^4 \alpha_3^3 + 69696 \alpha_2^6 x_3^3 \alpha_1^3 \alpha_3^2 + 15270 \alpha_2^4 x_3^3 \alpha_1^5 \alpha_3^2 \\
& + 96112 \alpha_2^2 x_3^3 \alpha_3^8 \alpha_1 + 15812 \alpha_2^8 x_3^3 \alpha_1^2 \alpha_3 + 9232 \alpha_2^8 x_3^3 \alpha_3^2 \alpha_1 \\
& - 1474 \alpha_2^6 x_3^3 \alpha_1^4 \alpha_3 - 895988 \alpha_2^4 x_3^3 \alpha_1^2 \alpha_3^5 + 640916 \alpha_2^4 x_3^3 \alpha_1^3 \alpha_3^4 \\
& - 18310 \alpha_2^2 x_3^3 \alpha_1^6 \alpha_3^3 + 139216 \alpha_2^2 x_3^3 \alpha_1^5 \alpha_3^4 + 449534 \alpha_2^4 x_3^3 \alpha_3^6 \alpha_1 \\
& + 261528 \alpha_2^9 x_1 x_3 x_2^3 \alpha_3 + 6912 \alpha_2^7 x_4^3 \alpha_1^4 - 385468 \alpha_2^6 x_3^3 \alpha_3^3 \alpha_1^2 \\
& - 349090 \alpha_2^2 x_3^3 \alpha_3^7 \alpha_1^2 - 216 \alpha_2^4 x_3^3 \alpha_1^6 \alpha_3 + 672040 \alpha_2^6 x_3^3 \alpha_3^4 \alpha_1 \\
& + 648 \alpha_2^2 x_3^3 \alpha_1^7 \alpha_3^2 + 548024 \alpha_2^2 x_3^3 \alpha_3^6 \alpha_1^3 - 408190 \alpha_2^2 x_3^3 \alpha_1^4 \alpha_3^5 \\
& + 1440 \alpha_2^4 x_1 x_4^2 \alpha_1^8 + 3582912 \alpha_2^5 x_3^2 x_4^2 \alpha_1^2 \alpha_3^4 - 456 \alpha_2^7 x_3^2 x_4^2 \alpha_1^4 \\
& + 55750 \alpha_2^2 x_3^2 x_4^2 \alpha_1^6 \alpha_3^4 - 2900706 \alpha_2^7 x_3^2 x_4^2 \alpha_1^3 \alpha_3 - 2037362 \alpha_2^3 x_3^2 x_4^2 \alpha_1^3 \alpha_3^5 \\
& + 444180 \alpha_2^2 x_3^2 x_4^2 \alpha_1^4 \alpha_3^6 - 190810 \alpha_2^3 x_3^2 x_4^2 \alpha_1^5 \alpha_3^3 + 1275050 \alpha_2^3 x_3^2 x_4^2 \alpha_1^2 \alpha_3^6 \\
& - 339028 \alpha_2^2 x_3^2 x_4^2 \alpha_1^3 \alpha_3^7 + 595730 \alpha_2^4 x_4 x_3 x_2^2 \alpha_1^5 \alpha_3^3 - 1648828 \alpha_2^5 x_3^2 x_4^2 \alpha_3^5 \alpha_1 \\
& - 72 \alpha_2^6 x_3^3 \alpha_1^5 - 10400 \alpha_2^{10} x_3^3 \alpha_1 - 202316 \alpha_2^8 x_3^3 \alpha_3^3 - 1736 \alpha_2^8 x_3^3 \alpha_1^3 \\
& - 201394 \alpha_2^6 x_3^3 \alpha_3^5 - 65452 \alpha_2^4 x_3^3 \alpha_3^7 + 47600 \alpha_2^{10} x_3^3 \alpha_3 - 8410 \alpha_2^2 x_3^3 \alpha_3^9)
\end{aligned}$$

$$\begin{aligned}
& -6120 \alpha_2^3 x_2 x_3^2 \alpha_1^7 \alpha_3^2 - 104120 \alpha_2 x_2 x_3^2 \alpha_1^4 \alpha_3^7 + 3174305 \alpha_2^9 x_2 x_3^2 \alpha_3^2 \alpha_1 \\
& + 1981630 \alpha_2^7 x_2 x_3^2 \alpha_3^4 \alpha_1 - 69220 \alpha_2 x_2 x_3^2 \alpha_1^6 \alpha_3^5 - 29265 \alpha_2^7 x_2 x_3^2 \alpha_1^4 \alpha_3 \\
& + 21500 \alpha_2 x_2 x_3^2 \alpha_1^7 \alpha_3^4 - 1111450 \alpha_2^3 x_2 x_3^2 \alpha_1^4 \alpha_3^5 + 12080 \alpha_2^2 x_4 x_3 x_2 \alpha_1^3 \alpha_3^7 \\
& + 5165 \alpha_2^5 x_2 x_3^2 \alpha_1^5 \alpha_3^2 + 117320 \alpha_2 x_2 x_3^2 \alpha_1^5 \alpha_3^6 + 36460 \alpha_2 x_2 x_3^2 \alpha_1^3 \alpha_3^8 \\
& - 674505 \alpha_2^9 x_2 x_3^2 \alpha_3^3 + 28615 \alpha_2^9 x_2 x_3^2 \alpha_1^3 - 4104 \alpha_2^5 x_3^2 x_4 \alpha_1^5 \alpha_3 \\
& + 8136 \alpha_2^3 x_3^2 x_4 \alpha_1^6 \alpha_3^2 - 257422 \alpha_2 x_3^2 x_4 \alpha_1^5 \alpha_3^5 - 19974 \alpha_2 x_3^2 x_4 \alpha_3^9 \alpha_1 \\
& - 147128 \alpha_2^9 x_3^2 x_4 \alpha_1 \alpha_3 - 62400 \alpha_2^{11} x_3^2 x_4 + 1120560 \alpha_2^3 x_3^2 x_4 \alpha_1^4 \alpha_3^4 \\
& + 1115354 \alpha_2^7 x_3^2 x_4 \alpha_1^2 \alpha_3^2 - 1762484 \alpha_2^5 x_3^2 x_4 \alpha_1^3 \alpha_3^3 - 317228 \alpha_2^3 x_3^2 x_4 \alpha_3^7 \alpha_1 \\
& + 118990 \alpha_2 x_3^2 x_4 \alpha_1^2 \alpha_3^8 + 124550 \alpha_2^4 x_4 x_3 x_2 \alpha_1^2 \alpha_3^6 - 69590 \alpha_2^7 x_3^2 x_4 \alpha_1^3 \alpha_3 \\
& + 211634 \alpha_2^5 x_3^2 x_4 \alpha_1^4 \alpha_3^2 + 9659845 x_1 x_3^2 \alpha_2^4 \alpha_1^4 \alpha_3^4 - 9104320 x_1 x_3^2 \alpha_2^{10} \alpha_1 \alpha_3 \\
& - 19107720 x_1 x_3^2 \alpha_2^6 \alpha_1^3 \alpha_3^3 + 783805 x_1 x_3^2 \alpha_2^4 \alpha_1^6 \alpha_3^2 - 6619245 x_1 x_3^2 \alpha_2^8 \alpha_1^3 \alpha_3 \\
& - 858845 x_1 x_3^2 \alpha_2^6 \alpha_1^5 \alpha_3 + 13320 x_1 x_3^2 \alpha_1^8 \alpha_3^2 \alpha_2^2 + 9120575 x_1 x_3^2 \alpha_2^6 \alpha_1^4 \alpha_3^2 \\
& - 28080 x_1 x_3^2 \alpha_1^7 \alpha_2^4 \alpha_3 + 1785990 x_1 x_3^2 \alpha_2^{10} \alpha_1^2 - 29610 x_1 x_3^2 \alpha_2^4 \alpha_3^7 \alpha_1 \\
& - 527395 x_1 x_3^2 \alpha_2^6 \alpha_3^5 \alpha_1 + 14760 x_1 x_3^2 \alpha_1^6 \alpha_2^6 - 3623815 x_1 x_3^2 \alpha_2^8 \alpha_3^3 \alpha_1 \\
& + 622310 x_1 x_3^2 \alpha_2^4 \alpha_3^6 \alpha_1^2 + 21735 x_1 x_3^2 \alpha_1^2 \alpha_3^8 \alpha_2^2 - 224555 x_1 x_3^2 \alpha_1^3 \alpha_3^7 \alpha_2^2 \\
& - 5543395 x_1 x_3^2 \alpha_1^5 \alpha_3^3 \alpha_2^4 + 1256075 x_1 x_3^2 \alpha_1^6 \alpha_3^4 \alpha_2^2 \\
& - 4399575 x_1 x_3^2 \alpha_2^4 \alpha_3^5 \alpha_1^3 + 1689000 x_1 x_3^2 \alpha_2^{12} + 1130870 x_1 x_3^2 \alpha_1^4 \alpha_3^6 \alpha_2^2 \\
& + 6182830 x_1 x_3^2 \alpha_2^6 \alpha_3^4 \alpha_1^2 - 336820 \alpha_2^6 x_4 x_3 x_2 \alpha_3^5 \alpha_1 - 236735 x_1 x_3^2 \alpha_1^7 \alpha_3^3 \alpha_2^2 \\
& + 18825525 x_1 x_3^2 \alpha_2^8 \alpha_3^2 \alpha_1^2 - 3576 \alpha_2 x_3^2 x_4 \alpha_1^7 \alpha_3^3 + 1846190 \alpha_2^7 x_2 x_3^2 \alpha_3^2 \alpha_1^3 \\
& - 26015 \alpha_2^3 x_2 x_3^2 \alpha_1^6 \alpha_3^3 + 465800 \alpha_2^3 x_2 x_3^2 \alpha_1^5 \alpha_3^4 + 262630 \alpha_2^5 x_2 x_3^2 \alpha_3^6 \alpha_1 \\
& - 1442575 \alpha_2^9 x_2 x_3^2 \alpha_1^2 \alpha_3 - 175295 \alpha_2^3 x_2 x_3^2 \alpha_3^7 \alpha_1^2 - 1680 \alpha_2 x_2 x_3^2 \alpha_1^8 \alpha_3^3 \\
& + 565455 x_1^3 \alpha_2^{10} \alpha_3^3 - 1259295 \alpha_2^5 x_2 x_3^2 \alpha_1^4 \alpha_3^3 - 4885720 \alpha_2^7 x_2 x_3^2 \alpha_3^3 \alpha_1^2 \\
& + 3488445 \alpha_2^5 x_2 x_3^2 \alpha_1^3 \alpha_3^4 + 14400 \alpha_2^5 x_2 x_3^2 \alpha_1^6 \alpha_3 + 867860 \alpha_2^3 x_2 x_3^2 \alpha_3^6 \alpha_1^3 \\
& + 1222700 x_1^3 \alpha_2^{12} \alpha_3 - 2070865 \alpha_2^5 x_2 x_3^2 \alpha_3^5 \alpha_1^2 - 313128 \alpha_2^2 x_3^2 x_4 \alpha_1^4 \alpha_3^5 \\
& - 3001032 \alpha_2^6 x_3 x_4 \alpha_3^3 \alpha_1^2 - 220968 \alpha_2^6 x_3 x_4 \alpha_3^2 \alpha_1^5 - 1962330 x_1 x_3^2 \alpha_1^5 \alpha_3^5 \alpha_2^2 \\
& + 864 \alpha_2^2 x_3 x_4 \alpha_1^7 \alpha_3^2 + 63325 x_1^3 \alpha_2^8 \alpha_3^5 - 59960 \alpha_2^2 x_4 x_3 x_2 \alpha_1^6 \alpha_3^4 \\
& + 2052225 x_1^2 x_3 \alpha_1^8 \alpha_2^4 \alpha_3 + 5943750 x_1^2 x_3 \alpha_1 \alpha_2^{10} \alpha_3^2 - 5559150 x_1^2 x_3 \alpha_1^4 \alpha_2^6 \alpha_3^3 \\
& + 933750 x_1^2 x_3 \alpha_1^4 \alpha_2^8 \alpha_3 - 4561350 x_1^2 x_3 \alpha_1^4 \alpha_2^4 \alpha_3^5 - 149200 \alpha_2^2 x_4 x_3 x_2 \alpha_1^4 \alpha_3^6
\end{aligned}$$

$$\begin{aligned}
& +927176 \alpha_2^9 x_3^2 x_4 \alpha_3^2 - 144210 \alpha_2^4 x_4 x_3 x_2 \alpha_1^3 \alpha_3^5 - 100748 \alpha_2^5 x_4 \alpha_3^5 \alpha_1 \\
& + 200190 \alpha_2^8 x_4 x_3 x_2 \alpha_3^4 - 698700 \alpha_2^{10} x_4 x_3 x_2 \alpha_1^2 + 965100 \alpha_2^{10} x_4 x_3 x_2 \alpha_3^2 \\
& + 9720 x_1^3 \alpha_1^7 \alpha_2^6 - 1252640 \alpha_2^4 x_3 x_4 \alpha_1^2 \alpha_3^5 - 2304 \alpha_2^4 x_3 x_4 \alpha_1^6 \alpha_3 \\
& + 2651568 \alpha_2^8 x_3 x_4 \alpha_3^2 \alpha_1 + 704784 \alpha_2^6 x_3 x_4 \alpha_1^3 \alpha_3^2 + 47656 \alpha_2^4 x_3 x_4 \alpha_1^5 \alpha_3^2 \\
& - 392690 \alpha_2^7 x_4 \alpha_1^3 \alpha_3^3 + 20910 \alpha_2^2 x_3 x_4 \alpha_3^8 \alpha_1 - 459514 \alpha_2^4 x_3 x_4 \alpha_1^4 \alpha_3^3 \\
& - 415692 \alpha_2^8 x_3 x_4 \alpha_1^2 \alpha_3^2 - 45776 \alpha_2^6 x_3 x_4 \alpha_1^4 \alpha_3 + 103302 \alpha_2^2 x_3 x_4 \alpha_1^5 \alpha_3^4 \\
& + 324744 \alpha_2^4 x_3 x_4 \alpha_3^6 \alpha_1 - 753884 \alpha_2^8 x_3 x_4 \alpha_3^3 + 1563752 \alpha_2^4 x_3 x_4 \alpha_1^3 \alpha_3^4 \\
& - 15816 \alpha_2^2 x_3 x_4 \alpha_1^6 \alpha_3^3 - 119976 \alpha_2^2 x_3 x_4 \alpha_3^7 \alpha_1^2 + 1660000 \alpha_2^6 x_3 x_4 \alpha_3^4 \alpha_1 \\
& + 1208245 x_1^3 \alpha_1^3 \alpha_2^{10} - 772290 \alpha_2^9 x_1 x_4 x_3 \alpha_1^3 + 9346 \alpha_2^5 x_4 \alpha_3^6 \\
& + 26454 \alpha_2^3 x_3^2 x_4 \alpha_3^8 + 936 \alpha_2^4 x_2^2 x_3 \alpha_3^8 + 11640 \alpha_2^4 x_4 x_3 x_2 \alpha_1^6 \alpha_3^2 \\
& + 214438 \alpha_2^5 x_3^2 x_4 \alpha_3^6 - 5904 \alpha_2^9 x_3^2 x_4 \alpha_1^2 + 734406 \alpha_2^7 x_3^2 x_4 \alpha_3^4 \\
& + 324924 \alpha_2^2 x_3 x_4 \alpha_3^6 \alpha_1^3 + 132840 \alpha_2^6 x_4 x_3 x_2 \alpha_1^5 \alpha_3 + 236960 \alpha_2^2 x_4 x_3 x_2 \alpha_1^5 \alpha_3^5 \\
& - 1773600 \alpha_2^{10} x_4 x_3 x_2 \alpha_1 \alpha_3 - 705590 \alpha_2^4 x_4 x_3 x_2 \alpha_1^4 \alpha_3^4 + 610000 \alpha_2^{12} x_4 x_3 x_2 \\
& + 1532330 \alpha_2^8 x_4 x_3 x_2 \alpha_1^2 \alpha_3^2 + 99900 \alpha_2^6 x_4 x_3 x_2 \alpha_1^3 \alpha_3^3 + 8640 \alpha_2^2 x_4 x_3 x_2 \alpha_1^8 \alpha_3^2 \\
& + 1080 \alpha_2^6 x_1^2 x_3 \alpha_1^6 - 12960 \alpha_2^4 x_4 x_3 x_2 \alpha_1^7 \alpha_3 + 14490 \alpha_2^4 x_1^2 x_3 \alpha_3^8 \\
& - 47600 \alpha_2^2 x_4 x_3 x_2 \alpha_1^7 \alpha_3^3 + 4320 \alpha_2^6 x_4 x_3 x_2 \alpha_1^6 - 1709920 \alpha_2^6 x_4 x_3 x_2 \alpha_1^4 \alpha_3^2 \\
& - 96880 \alpha_2^8 x_4 x_3 x_2 \alpha_1^4 + 1625520 \alpha_2^6 x_4 x_3 x_2 \alpha_1^2 \alpha_3^4 + 1872850 \alpha_2^8 x_4 x_3 x_2 \alpha_1^3 \alpha_3 \\
& - 2297210 \alpha_2^8 x_4 x_3 x_2 \alpha_1 \alpha_3^3 - 261340 \alpha_2^5 x_1 x_4 x_3 \alpha_3^6 \alpha_1 \\
& + 331970 \alpha_2^3 x_1 x_4 x_3 \alpha_3^7 \alpha_1^2 - 8640 \alpha_2^5 x_1 x_4 x_3 \alpha_1^7 - 170080 \alpha_2^7 x_1 x_4 x_3 \alpha_1^5 \\
& - 5760 \alpha_2 x_1 x_4 x_3 \alpha_1^9 \alpha_3^2 + 126560 \alpha_2 x_1 x_4 x_3 \alpha_1^8 \alpha_3^3 + 801400 \alpha_2^{11} x_1 x_4 x_3 \alpha_1 \\
& + 13273690 \alpha_2^5 x_1 x_4 x_3 \alpha_1^4 \alpha_3^3 + 12744000 \alpha_2^7 x_1 x_4 x_3 \alpha_3^3 \alpha_1^2 \\
& + 462400 \alpha_2^5 x_1 x_4 x_3 \alpha_1^6 \alpha_3 - 14617510 \alpha_2^5 x_1 x_4 x_3 \alpha_1^3 \alpha_3^4 + 195656 \alpha_2^9 x_4 \alpha_3^3 \alpha_1^2 \\
& - 3284920 \alpha_2^3 x_1 x_4 x_3 \alpha_3^6 \alpha_1^3 + 84814 \alpha_2^8 x_2^2 x_3 \alpha_3^4 + 4421470 \alpha_2^5 x_1 x_4 x_3 \alpha_3^5 \alpha_1^2 \\
& + 893280 \alpha_2 x_1 x_4 x_3 \alpha_1^4 \alpha_3^7 + 30032 \alpha_2^{10} x_2^2 x_3 \alpha_1^2 - 418880 \alpha_2^3 x_1 x_4 x_3 \alpha_1^7 \alpha_3^2 \\
& + 69930 \alpha_2^7 x_1 x_4 x_3 \alpha_3^5 - 6003310 \alpha_2^9 x_1 x_4 x_3 \alpha_3^2 \alpha_1 - 2626820 \alpha_2^7 x_1 x_4 x_3 \alpha_3^4 \alpha_1 \\
& + 2002720 \alpha_2 x_1 x_4 x_3 \alpha_1^6 \alpha_3^5 + 3370270 \alpha_2^7 x_1 x_4 x_3 \alpha_1^4 \alpha_3 \\
& - 871440 \alpha_2 x_1 x_4 x_3 \alpha_1^7 \alpha_3^4 - 5271710 \alpha_2^5 x_1 x_4 x_3 \alpha_1^5 \alpha_3^2 \\
& + 8573660 \alpha_2^3 x_1 x_4 x_3 \alpha_1^4 \alpha_3^5 + 14400 \alpha_2^3 x_1 x_4 x_3 \alpha_1^8 \alpha_3 + 1309400 \alpha_2^{11} x_1 x_4 x_3 \alpha_3
\end{aligned}$$

$$\begin{aligned}
& -2006240 \alpha_2 x_1 x_4 x_3 \alpha_1^5 \alpha_3^6 - 140560 \alpha_2 x_1 x_4 x_3 \alpha_1^3 \alpha_3^8 + 596990 \alpha_2^9 x_1 x_4 x_3 \alpha_3^3 \\
& + 70542 \alpha_2^7 x_4^3 \alpha_3^4 - 168916 \alpha_2^5 x_1 x_3 x_2 \alpha_1^5 \alpha_3^2 + 760160 \alpha_2^{11} x_1 x_3 x_2 \alpha_3 \\
& - 23508 \alpha_2 x_1 x_3 x_2 \alpha_1^2 \alpha_3^9 + 624 \alpha_2^9 x_1 x_3 x_2 \alpha_1^3 - 291432 \alpha_2 x_1 x_3 x_2 \alpha_1^5 \alpha_3^6 \\
& - 504 \alpha_2^4 x_2^2 x_3 \alpha_1^6 \alpha_3^2 - 936 \alpha_2^2 x_2^2 x_3 \alpha_3^9 \alpha_1 - 5112 \alpha_2^6 x_2^2 x_3 \alpha_1^5 \alpha_3 \\
& - 199816 \alpha_2^{10} x_2^2 x_3 \alpha_1 \alpha_3 + 116680 \alpha_2^2 x_2^2 x_3 \alpha_1^5 \alpha_3^5 - 395550 \alpha_2^4 x_2^2 x_3 \alpha_1^4 \alpha_3^4 \\
& + 75200 \alpha_2^{12} x_2^2 x_3 + 10762 \alpha_2^8 x_2^2 x_3 \alpha_1 \alpha_3 + 392724 \alpha_2^6 x_2^2 x_3 \alpha_1^3 \alpha_3^3 \\
& - 40636 \alpha_2^4 x_2^2 x_3 \alpha_3^7 \alpha_1 + 18266 \alpha_2^2 x_2^2 x_3 \alpha_1^2 \alpha_3^8 + 22370 \alpha_2^6 x_2^2 x_3 \alpha_3^6 \\
& - 3154 \alpha_2^6 x_2^2 x_3 \alpha_1^4 \alpha_3^2 + 2232 \alpha_2^2 x_2^2 x_3 \alpha_1^7 \alpha_3^3 - 60570 \alpha_2^8 x_2^2 x_3 \alpha_1^3 \alpha_3 \\
& + 3384 \alpha_2^8 x_2^2 x_3 \alpha_1^4 + 300330 \alpha_2^8 x_2^2 x_3 \alpha_1^3 \alpha_3 - 425928 \alpha_2^6 x_2^2 x_3 \alpha_1^2 \alpha_3^4 \\
& - 32254 \alpha_2^2 x_2^2 x_3 \alpha_1^6 \alpha_3^4 - 60012 \alpha_2^2 x_2^2 x_3 \alpha_1^4 \alpha_3^6 + 262658 \alpha_2^4 x_2^2 x_3 \alpha_1^3 \alpha_3^5 \\
& + 67972 \alpha_2 x_1 x_3 x_2 \alpha_1^3 \alpha_3^8 + 166286 \alpha_2^4 x_2^2 x_3 \alpha_1^2 \alpha_3^6 + 65946 \alpha_2^4 x_2^2 x_3 \alpha_1^5 \alpha_3^3 \\
& - 207124 \alpha_2^6 x_2^2 x_3 \alpha_3^5 \alpha_1 - 43976 \alpha_2^2 x_2^2 x_3 \alpha_1^3 \alpha_3^7 - 8258900 \alpha_2^7 x_1 x_4 x_3 \alpha_3^2 \alpha_1^3 \\
& + 3545170 \alpha_2^3 x_1 x_4 x_3 \alpha_1^6 \alpha_3^3 - 77048 \alpha_2^{10} x_2^2 x_3 \alpha_3^2 + 707410 \alpha_2^9 x_1 x_4 x_3 \alpha_1^2 \alpha_3 \\
& - 8526320 \alpha_2^3 x_1 x_4 x_3 \alpha_1^5 \alpha_3^4 + 129640 x_1 x_3^2 \alpha_2^8 \alpha_3^4 + 388776 \alpha_2^9 x_1 x_3 x_2 \alpha_1^2 \alpha_3 \\
& + 262628 \alpha_2^5 x_1 x_3 x_2 \alpha_3^6 \alpha_1 - 229384 \alpha_2^3 x_1 x_3 x_2 \alpha_3^7 \alpha_1^2 + 52344 \alpha_2^3 x_1 x_3 x_2 \alpha_3^8 \alpha_1 \\
& + 720 \alpha_2^7 x_1 x_3 x_2 \alpha_1^5 + 41136 \alpha_2^9 x_4^3 \alpha_1^2 - 18240 \alpha_2^{11} x_1 x_3 x_2 \alpha_1 \\
& + 3888 \alpha_2 x_1 x_3 x_2 \alpha_1^8 \alpha_3^3 + 4866468 \alpha_2^7 x_1 x_3 x_2 \alpha_3^3 \alpha_1^2 - 28836 \alpha_2^5 x_1 x_3 x_2 \alpha_3^7 \\
& + 1708988 \alpha_2^5 x_1 x_3 x_2 \alpha_1^4 \alpha_3^3 + 303576 \alpha_2^{10} x_1^2 x_3 \alpha_3^2 + 1872 \alpha_2^5 x_1 x_3 x_2 \alpha_1^6 \alpha_3 \\
& + 243138 \alpha_2^8 x_1^2 x_3 \alpha_3^4 - 3993968 \alpha_2^5 x_1 x_3 x_2 \alpha_1^3 \alpha_3^4 - 6600 \alpha_2^7 x_2^2 x_3 \alpha_1^5 \\
& + 891320 \alpha_2^5 x_1 x_3 x_2 \alpha_3^5 \alpha_1^2 - 406492 \alpha_2^3 x_1 x_3 x_2 \alpha_3^6 \alpha_1^3 - 6480 \alpha_2^3 x_1 x_3 x_2 \alpha_1^7 \alpha_3^2 \\
& + 62504 \alpha_2 x_1 x_3 x_2 \alpha_1^4 \alpha_3^7 - 123795 \alpha_2^7 x_2^2 x_3 \alpha_3^5 - 808860 \alpha_2^7 x_1 x_3 x_2 \alpha_3^4 \alpha_1 \\
& + 94896 \alpha_2^{10} x_1^2 x_3 \alpha_1^2 - 3023920 \alpha_2^9 x_1 x_3 x_2 \alpha_3^2 \alpha_1 - 101216 \alpha_2^7 x_1 x_3 x_2 \alpha_3^5 \\
& + 53740 \alpha_2^7 x_1 x_3 x_2 \alpha_1^4 \alpha_3 + 459100 \alpha_2^{11} x_2^2 x_3 \alpha_1 + 237116 \alpha_2 x_1 x_3 x_2 \alpha_1^6 \alpha_3^5 \\
& + 95850 \alpha_2^6 x_1^2 x_3 \alpha_3^6 - 782900 \alpha_2^{11} x_2^2 x_3 \alpha_3 + 1682692 \alpha_2^3 x_1 x_3 x_2 \alpha_1^4 \alpha_3^5 \\
& + 87174 \alpha_2^4 x_1^2 x_3 \alpha_1^6 \alpha_3^2 - 25740 \alpha_2^2 x_1^2 x_3 \alpha_3^9 \alpha_1 - 65538 \alpha_2^6 x_1^2 x_3 \alpha_1^5 \alpha_3 \\
& - 767928 \alpha_2^{10} x_1^2 x_3 \alpha_1 \alpha_3 - 876024 \alpha_2^2 x_1^2 x_3 \alpha_1^5 \alpha_3^5 - 2283240 \alpha_2^6 x_1^2 x_3 \alpha_1^3 \alpha_3^3 \\
& + 1907148 \alpha_2^4 x_1^2 x_3 \alpha_1^4 \alpha_3^4 + 218322 \alpha_2^2 x_1^2 x_3 \alpha_1^2 \alpha_3^8 + 1673694 \alpha_2^8 x_1^2 x_3 \alpha_1^2 \alpha_3^2 \\
& + 2376 \alpha_2^2 x_1^2 x_3 \alpha_1^8 \alpha_3^2 - 249264 \alpha_2^4 x_1^2 x_3 \alpha_3^7 \alpha_1 - 51558 \alpha_2^2 x_1^2 x_3 \alpha_1^7 \alpha_3^3
\end{aligned}$$

$$\begin{aligned}
& -2808 \alpha_2^4 x_1^2 x_3^7 \alpha_1^3 \alpha_3 + 177600 \alpha_2^{12} x_1^2 x_3 - 399294 \alpha_2^8 x_1^2 x_3 \alpha_1^3 \alpha_3 \\
& + 722670 \alpha_2^6 x_1^2 x_3 \alpha_1^4 \alpha_3^2 - 1274802 \alpha_2^8 x_1^2 x_3 \alpha_1^3 \alpha_3^3 + 2305368 \alpha_2^6 x_1^2 x_3 \alpha_1^2 \alpha_3^4 \\
& + 81600 \alpha_2^{11} x_4^3 + 1112388 \alpha_2^2 x_1^2 x_3 \alpha_1^4 \alpha_3^6 + 311775 x_1 x_3^2 \alpha_2^8 \alpha_1^4 \\
& + 7875 x_1 x_3^2 \alpha_2^6 \alpha_3^6 - 2217642 \alpha_2^4 x_1^2 x_3 \alpha_1^3 \alpha_3^5 + 334266 \alpha_2^2 x_1^2 x_3 \alpha_1^6 \alpha_3^4 \\
& + 18672 \alpha_2^8 x_1^2 x_3 \alpha_1^4 + 1155444 \alpha_2^4 x_1^2 x_3 \alpha_1^2 \alpha_3^6 - 687630 \alpha_2^4 x_1^2 x_3 \alpha_1^5 \alpha_3^3 \\
& - 852654 \alpha_2^6 x_1^2 x_3 \alpha_3^5 \alpha_1 - 714678 \alpha_2^2 x_1^2 x_3 \alpha_1^3 \alpha_3^7 - 1283268 \alpha_2^7 x_1 x_3 x_2 \alpha_3^2 \alpha_1^3 \\
& - 1033372 \alpha_2^3 x_1 x_3 x_2 \alpha_1^5 \alpha_3^4 + 172388 \alpha_2^3 x_1 x_3 x_2 \alpha_1^6 \alpha_3^3 + 709690 x_1 x_3^2 \alpha_2^{10} \alpha_3^2 \\
& + 3180945 \alpha_2^4 x_1 x_4^2 \alpha_1^5 \alpha_3^3 + 2915415 \alpha_2^4 x_1 x_4^2 \alpha_1^3 \alpha_3^5 + 127080 \alpha_2^2 x_1 x_4^2 \alpha_1^3 \alpha_3^7 \\
& - 297425 \alpha_2^4 x_1 x_4^2 \alpha_1^2 \alpha_3^6 + 218830 \alpha_2^6 x_1 x_4^2 \alpha_3^5 \alpha_1 + 13905 \alpha_2^5 x_2 x_4^2 \alpha_1^2 \alpha_3^5 \\
& - 163104 \alpha_2^2 x_1 x_4 x_2 \alpha_1^3 \alpha_3^7 - 121460 \alpha_2^5 x_2 x_4^2 \alpha_1^6 \alpha_3 + 552315 \alpha_2^9 x_2 x_4^2 \alpha_3^2 \alpha_1 \\
& - 39020 \alpha_2^3 x_2 x_4^2 \alpha_3^6 \alpha_1^3 - 1446950 \alpha_2^7 x_2 x_4^2 \alpha_1^3 \alpha_3^2 + 675555 \alpha_2^5 x_2 x_4^2 \alpha_1^4 \alpha_3^3 \\
& - 674670 \alpha_2^7 x_2 x_4^2 \alpha_1^4 \alpha_3 + 530332 \alpha_2^4 x_1 x_4 x_2 \alpha_1^2 \alpha_3^6 - 115820 \alpha_2^3 x_2 x_4^2 \alpha_1^5 \alpha_3^4 \\
& + 1368315 \alpha_2^9 x_2 x_4^2 \alpha_1^2 \alpha_3 - 537885 \alpha_2^5 x_2 x_4^2 \alpha_1^3 \alpha_3^4 - 180440 \alpha_2^3 x_2 x_4^2 \alpha_1^6 \alpha_3^3 \\
& - 1440 \alpha_2^3 x_2 x_4^2 \alpha_1^8 \alpha_3 + 119310 \alpha_2^7 x_2 x_4^2 \alpha_3^4 \alpha_1 + 208300 \alpha_2^3 x_2 x_4^2 \alpha_1^4 \alpha_3^5 \\
& + 138370 \alpha_2^7 x_2 x_4^2 \alpha_3^3 \alpha_1^2 - 57836 \alpha_2 x_1 x_3 x_2 \alpha_1^7 \alpha_3^4 + 59560 \alpha_2^3 x_2 x_4^2 \alpha_1^7 \alpha_3^2 \\
& - 10872 \alpha_2^5 x_4^3 \alpha_1^5 \alpha_3 + 47980 \alpha_2^5 x_2 x_4^6 \alpha_3 \alpha_1 - 579128 \alpha_2^6 x_1 x_4 x_2 \alpha_3^5 \alpha_1 \\
& + 30696 \alpha_2^3 x_2 x_4^6 \alpha_1^3 \alpha_3^3 - 30950 \alpha_2^3 x_2 x_4^5 \alpha_1^4 \alpha_3^4 - 119300 \alpha_2^9 x_2^3 \alpha_1^4 \\
& + 405502 \alpha_2^7 x_2 x_4^4 \alpha_3 \alpha_1 + 637412 \alpha_2^5 x_2 x_4^3 \alpha_1^4 \alpha_3^4 - 21938 \alpha_2^3 x_2 x_4^7 \alpha_3^2 \alpha_1^2 \\
& - 26042 \alpha_2^7 x_2 x_4^5 \alpha_3 - 1062750 \alpha_2^7 x_2 x_4^3 \alpha_1^2 \alpha_3^2 - 22880 \alpha_2^{11} x_2 x_4 \alpha_1^2 \\
& + 10526 \alpha_2^5 x_4^3 \alpha_1^4 \alpha_3^2 - 47046 \alpha_2^3 x_4^3 \alpha_1^4 \alpha_3^4 + 101174 \alpha_2^3 x_2 x_4^6 \alpha_3 \alpha_1^3 \\
& - 144718 \alpha_2^3 x_2 x_4^4 \alpha_1^5 \alpha_3 + 1440 \alpha_2^6 x_3 x_4^2 \alpha_1^5 + 60640 \alpha_2^{10} x_3 x_4^2 \alpha_1 \\
& + 12856 \alpha_2^8 x_3 x_4^2 \alpha_1^3 - 7200 \alpha_2^7 x_2^3 \alpha_1^6 - 917360 \alpha_2^{10} x_3 x_4^2 \alpha_3 \\
& - 6112595 \alpha_2^4 x_1 x_4^2 \alpha_1^4 \alpha_3^4 - 27390 \alpha_2^4 x_3 x_4^2 \alpha_3^7 - 1440 \alpha_2^2 x_1 x_4^2 \alpha_1^9 \alpha_3 \\
& - 99720 \alpha_2^4 x_1 x_4^2 \alpha_1^6 \alpha_3^2 + 1348160 \alpha_2^2 x_1 x_4^2 \alpha_1^5 \alpha_3^5 + 140220 \alpha_2^6 x_1 x_4^2 \alpha_1^5 \alpha_3 \\
& + 3911760 \alpha_2^{10} x_1 x_4^2 \alpha_1 \alpha_3 - 607000 \alpha_2^{12} x_1 x_4^2 - 5203700 \alpha_2^6 x_1 x_4^2 \alpha_1^4 \alpha_3^2 \\
& + 10916270 \alpha_2^6 x_1 x_4^2 \alpha_1^3 \alpha_3^3 + 13480 \alpha_2^2 x_1 x_4^2 \alpha_1^8 \alpha_3^2 - 9456595 \alpha_2^8 x_1 x_4^2 \alpha_1^2 \alpha_3^2 \\
& + 22200 \alpha_2^2 x_1 x_4^2 \alpha_1^7 \alpha_3^3 - 29840 \alpha_2^4 x_1 x_4^2 \alpha_1^7 \alpha_3 + 3839545 \alpha_2^8 x_1 x_4^2 \alpha_1^3 \alpha_3 \\
& - 3917160 \alpha_2^6 x_1 x_4^2 \alpha_1^2 \alpha_3^4 + 2202675 \alpha_2^8 x_1 x_4^2 \alpha_1 \alpha_3^3 + 613305 \alpha_2^5 x_2 x_4^2 \alpha_1^5 \alpha_3^2
\end{aligned}$$

$$\begin{aligned}
& -736320 \alpha_2^2 x_1 x_4^2 \alpha_1^6 \alpha_3^4 - 773160 \alpha_2^2 x_1 x_4^2 \alpha_1^4 \alpha_3^6 - 1860684 \alpha_2^8 x_1 x_4 x_2 \alpha_1^2 \alpha_3^2 \\
& - 62424 \alpha_2^4 x_1 x_4 x_2 \alpha_3^7 \alpha_1 + 28548 \alpha_2^2 x_1 x_4 x_2 \alpha_1^2 \alpha_3^8 + 266296 \alpha_2^5 x_4^3 \alpha_1^2 \alpha_3^4 \\
& - 125772 \alpha_2^2 x_1 x_4 x_2 \alpha_1^6 \alpha_3^4 + 6888 \alpha_2^3 x_4^3 \alpha_1^5 \alpha_3^3 - 56390 \alpha_2^7 x_4^3 \alpha_1^3 \alpha_3 \\
& - 62062 \alpha_2^3 x_4^3 \alpha_1^3 \alpha_3^5 + 35606 \alpha_2^3 x_4^3 \alpha_1^2 \alpha_3^6 - 7186 \alpha_2^3 x_4^3 \alpha_1 \alpha_3^7 \\
& + 8064 \alpha_2^4 x_1 x_4 x_2 \alpha_1^7 \alpha_3 + 33876 \alpha_2^6 x_1 x_4 x_2 \alpha_3^6 - 1144052 \alpha_2^6 x_1 x_4 x_2 \alpha_1^4 \alpha_3^2 \\
& + 54144 \alpha_2^2 x_1 x_4 x_2 \alpha_1^7 \alpha_3^3 + 4320 \alpha_2^3 x_4^3 \alpha_1^6 \alpha_3^2 + 916204 \alpha_2^8 x_1 x_4 x_2 \alpha_1^3 \alpha_3 \\
& - 566400 \alpha_2^{12} x_1 x_4 x_2 + 1975504 \alpha_2^6 x_1 x_4 x_2 \alpha_1^2 \alpha_3^4 - 55376 \alpha_2^8 x_1 x_4 x_2 \alpha_1^4 \\
& - 1237964 \alpha_2^8 x_1 x_4 x_2 \alpha_1 \alpha_3^3 + 286570 \alpha_2^{11} x_2^3 \alpha_3^2 - 4320 \alpha_2^3 x_2^2 x_4^7 \alpha_1^2 \alpha_3^2 \\
& + 353544 \alpha_2^2 x_1 x_4 x_2 \alpha_1^4 \alpha_3^6 - 3744 \alpha_2^6 x_1 x_4 x_2 \alpha_1^6 - 1377180 \alpha_2^4 x_1 x_4 x_2 \alpha_1^3 \alpha_3^5 \\
& - 270944 \alpha_2^{10} x_1 x_4 x_2 \alpha_1^2 + 624564 \alpha_2^4 x_1 x_4 x_2 \alpha_1^5 \alpha_3^3 + 211900 \alpha_2^8 x_1 x_4 x_2 \alpha_3^4 \\
& + 643980 \alpha_2^2 x_1^2 x_4 \alpha_1^5 \alpha_3^6 - 114934 \alpha_2^7 x_4^3 \alpha_1^2 \alpha_3^2 + 286096 \alpha_2^{10} x_1 x_4 x_2 \alpha_3^2 \\
& + 795736 \alpha_2^9 x_2^2 x_4 \alpha_3^2 \alpha_1 - 351272 \alpha_2^5 x_2^2 x_4 \alpha_1^2 \alpha_3^5 + 36320 \alpha_2^9 x_2^3 \alpha_3^4 \\
& - 89792 \alpha_2^5 x_2^2 x_4 \alpha_1^5 \alpha_3^2 + 8064 \alpha_2^5 x_2^2 x_4 \alpha_1^6 \alpha_3 + 128544 \alpha_2^5 x_2^2 x_4 \alpha_1^4 \alpha_3^3 \\
& - 188198 \alpha_2^7 x_2^2 x_4 \alpha_1^3 \alpha_3^2 - 702228 \alpha_2^9 x_1^2 x_4 \alpha_3^3 + 936 \alpha_2^3 x_2^2 x_4 \alpha_3^8 \alpha_1 \\
& - 405030 \alpha_2^{11} x_2^3 \alpha_1^2 + 113484 \alpha_2^9 x_2^2 x_4 \alpha_1^2 \alpha_3 + 85552 \alpha_2^7 x_2^2 x_4 \alpha_1^4 \alpha_3 \\
& + 441030 \alpha_2^7 x_1^2 x_4 \alpha_1^4 \alpha_3 - 11574 \alpha_2 x_1^2 x_4 \alpha_1^7 \alpha_3^4 - 290274 \alpha_2 x_1^2 x_4 \alpha_1^6 \alpha_3^5 \\
& - 3257502 \alpha_2^3 x_1^2 x_4 \alpha_1^4 \alpha_3^5 - 4320 \alpha_2^2 x_1 x_4 x_2 \alpha_1^8 \alpha_3^2 - 14058 \alpha_2^2 x_1^2 x_4 \alpha_1^2 \alpha_3^9 \\
& + 3456 \alpha_2^3 x_1^2 x_4 \alpha_1^8 \alpha_3 - 427770 \alpha_2^{10} x_1 x_4^2 \alpha_3^2 - 165392 \alpha_2^4 x_1 x_4 x_2 \alpha_1^6 \alpha_3^2 \\
& + 124674 \alpha_2 x_1^2 x_4 \alpha_1^3 \alpha_3^8 + 1440 \alpha_2^5 x_2^2 x_4 \alpha_1^7 + 61900 \alpha_2^7 x_2^2 x_4 \alpha_1^5 \\
& + 166624 \alpha_2^6 x_1 x_4 x_2 \alpha_1^5 \alpha_3 - 94195 \alpha_2^9 x_2^2 x_4 \alpha_3^3 - 481100 \alpha_2^{11} x_2^2 x_4 \alpha_1^2 \\
& + 241805 \alpha_2^9 x_2^2 x_4 \alpha_1^3 - 361100 \alpha_2^{11} x_2^2 x_4 \alpha_3 + 149388 \alpha_2^5 x_4^3 \alpha_1^3 \alpha_3^3 \\
& + 1776752 \alpha_2^{10} x_1 x_4 x_2 \alpha_1 \alpha_3 - 141744 \alpha_2^2 x_1 x_4 x_2 \alpha_1^5 \alpha_3^5 \\
& + 276388 \alpha_2^4 x_1 x_4 x_2 \alpha_1^4 \alpha_3^4 + 515688 \alpha_2^6 x_1 x_4 x_2 \alpha_1^3 \alpha_3^3 - 63608 \alpha_2^9 x_4^3 \alpha_1 \alpha_3 \\
& - 1080470 \alpha_2^{10} x_1 x_4^2 \alpha_1^2 + 145410 \alpha_2^3 x_1^2 x_4 \alpha_1^6 \alpha_3^3 + 423870 \alpha_2^7 x_1^2 x_4 \alpha_3^2 \alpha_1^3 \\
& + 1154514 \alpha_2^3 x_1^2 x_4 \alpha_1^5 \alpha_3^4 - 413322 \alpha_2^5 x_1^2 x_4 \alpha_1^5 \alpha_3^2 + 527604 \alpha_2^9 x_1^2 x_4 \alpha_1^2 \alpha_3^2 \\
& + 31356 \alpha_2^3 x_1^2 x_4 \alpha_3^8 \alpha_1 + 452754 \alpha_2^5 x_1^2 x_4 \alpha_3^6 \alpha_1 - 1728 \alpha_2 x_1^2 x_4 \alpha_1^9 \alpha_3^2 \\
& - 409716 \alpha_2^3 x_1^2 x_4 \alpha_3^7 \alpha_1^2 + 19608 \alpha_2 x_1^2 x_4 \alpha_1^8 \alpha_3^3 - 1510914 \alpha_2^5 x_1^2 x_4 \alpha_1^4 \alpha_3^3 \\
& - 7286862 \alpha_2^7 x_1^2 x_4 \alpha_3^3 \alpha_1^2 + 6773064 \alpha_2^5 x_1^2 x_4 \alpha_1^3 \alpha_3^4 + 80424 \alpha_2^5 x_1^2 x_4 \alpha_1^6 \alpha_3
\end{aligned}$$

$$\begin{aligned}
& + 2056722 \alpha_2^3 x_1^2 x_4 \alpha_3^6 \alpha_1^3 - 3391044 \alpha_2^5 x_1^2 x_4 \alpha_3^5 \alpha_1^2 - 69192 \alpha_2^3 x_1^2 x_4 \alpha_1^7 \alpha_3^2 \\
& - 471276 \alpha_2^2 x_1^2 x_4 \alpha_1^4 \alpha_3^7 + 4076520 \alpha_2^9 x_1^2 x_4 \alpha_3^2 \alpha_1 + 2507826 \alpha_2^7 x_1^2 x_4 \alpha_3^4 \alpha_1 \\
& + 617000 \alpha_2^{13} x_2^3 - 48485 \alpha_2^8 x_1 x_4^2 \alpha_3^4 - 125160 \alpha_2^2 x_1 x_2^2 \alpha_1^4 \alpha_3^7 \\
& - 821760 \alpha_2^4 x_1 x_2^2 \alpha_1^7 \alpha_3^2 + 2517195 \alpha_2^{10} x_1 x_2^2 \alpha_3^2 \alpha_1 + 1266435 \alpha_2^8 x_1 x_2^2 \alpha_3^4 \alpha_1 \\
& + 5485125 \alpha_2^8 x_1 x_2^2 \alpha_1^4 \alpha_3 + 1387680 \alpha_2^2 x_1 x_2^2 \alpha_1^6 \alpha_3^5 - 1144080 \alpha_2^2 x_1 x_2^2 \alpha_1^7 \alpha_3^4 \\
& - 7727025 \alpha_2^6 x_1 x_2^2 \alpha_1^5 \alpha_3^2 + 978585 \alpha_2^4 x_1 x_2^2 \alpha_1^4 \alpha_3^5 - 396080 \alpha_2^2 x_1 x_2^2 \alpha_1^5 \alpha_3^6 \\
& + 31680 \alpha_2^4 x_1 x_2^2 \alpha_1^8 \alpha_3 + 16360 \alpha_2^6 x_1 x_4^2 \alpha_1^6 + 36000 \alpha_2^2 x_1 x_2^2 \alpha_1^3 \alpha_3^8 \\
& - 62700 \alpha_2^8 x_1 x_4^2 \alpha_1^4 + 169815 x_1^3 \alpha_1^2 \alpha_2^4 \alpha_3^7 - 155404 \alpha_2^9 x_2^2 x_4 \alpha_3^3 \\
& - 26456 \alpha_2^9 x_2^2 x_4 \alpha_1^3 - 225680 \alpha_2^{11} x_2^2 x_4 \alpha_3 - 936 \alpha_2^5 x_2^2 x_4 \alpha_3^7 \\
& + 1641700 x_1^3 \alpha_1^2 \alpha_2^{12} + 203955 x_1^3 \alpha_1^5 \alpha_2^8 - 871780 \alpha_2^2 x_1^2 x_2 \alpha_1^8 \alpha_3^4 \\
& + 9571380 \alpha_2^{11} x_1^2 x_2 \alpha_1 \alpha_3 - 1586840 \alpha_2^2 x_1^2 x_2 \alpha_1^6 \alpha_3^6 - 1981000 \alpha_2^{13} x_1^2 x_2 \\
& - 19015290 \alpha_2^5 x_1^2 x_2 \alpha_1^4 \alpha_3^4 - 5465085 \alpha_2^5 x_1^2 x_2 \alpha_1^6 \alpha_3^2 \\
& + 25077930 \alpha_2^7 x_1^2 x_2 \alpha_1^3 \alpha_3^3 - 8640 \alpha_2^2 x_1^2 x_2 \alpha_1^{10} \alpha_3^2 + 3718645 \alpha_2^7 x_1^2 x_2 \alpha_1^5 \alpha_3 \\
& + 17280 \alpha_2^3 x_1^2 x_2 \alpha_1^9 \alpha_3 + 154560 \alpha_2^2 x_1^2 x_2 \alpha_1^9 \alpha_3^3 + 7168510 \alpha_2^9 x_1^2 x_2 \alpha_1^3 \alpha_3 \\
& + 1794780 \alpha_2^2 x_1^2 x_2 \alpha_1^7 \alpha_3^5 - 15319710 \alpha_2^7 x_1^2 x_2 \alpha_1^4 \alpha_3^2 + 500400 \alpha_2^5 x_1^2 x_2 \alpha_1^7 \alpha_3 \\
& - 482040 \alpha_2^3 x_1^2 x_2 \alpha_1^8 \alpha_3^2 - 1326110 \alpha_2^{11} x_1^2 x_2 \alpha_1^2 - 174765 \alpha_2^5 x_1^2 x_2 \alpha_3^6 \alpha_1^2 \\
& - 28020 \alpha_2^2 x_1^2 x_2 \alpha_1^4 \alpha_3^8 + 126645 \alpha_2^7 x_1^2 x_2 \alpha_3^5 \alpha_1 - 8640 \alpha_2^5 x_1^2 x_2 \alpha_1^8 \\
& + 111655 \alpha_2^3 x_1^2 x_2 \alpha_1^3 \alpha_3^7 + 3468670 \alpha_2^9 x_1^2 x_2 \alpha_3^3 \alpha_1 - 172920 \alpha_2^7 x_1^2 x_2 \alpha_1^6 \\
& - 8550580 \alpha_2^3 x_1^2 x_2 \alpha_1^6 \alpha_3^4 + 16233110 \alpha_2^5 x_1^2 x_2 \alpha_1^5 \alpha_3^3 \\
& + 5655570 \alpha_2^5 x_1^2 x_2 \alpha_3^5 \alpha_1^3 + 550360 \alpha_2^2 x_1^2 x_2 \alpha_1^5 \alpha_3^7 - 947995 \alpha_2^9 x_1^2 x_2 \alpha_1^4 \\
& - 2723500 \alpha_2^3 x_1^2 x_2 \alpha_1^4 \alpha_3^6 - 6146590 \alpha_2^7 x_1^2 x_2 \alpha_3^4 \alpha_1^2 \\
& - 20369310 \alpha_2^9 x_1^2 x_2 \alpha_3^2 \alpha_1^2 + 3566215 \alpha_2^3 x_1^2 x_2 \alpha_1^7 \alpha_3^3 \\
& - 9284355 \alpha_2^8 x_1^2 x_2 \alpha_3^2 \alpha_1^3 + 8303130 \alpha_2^3 x_1^2 x_2 \alpha_1^5 \alpha_3^5 \\
& - 6185525 \alpha_2^4 x_1^2 x_2 \alpha_1^5 \alpha_3^4 + 4848415 \alpha_2^4 x_1^2 x_2 \alpha_1^6 \alpha_3^3 + 122760 \alpha_2^6 x_1^2 x_2 \alpha_3^6 \alpha_1 \\
& + 3860345 \alpha_2^{10} x_1^2 x_2 \alpha_1^2 \alpha_3^2 - 15840 \alpha_2^2 x_1^2 x_2 \alpha_1^9 \alpha_3^2 - 115380 \alpha_2^4 x_1^2 x_2 \alpha_3^7 \alpha_1^2 \\
& + 257480 \alpha_2^2 x_1^2 x_2 \alpha_1^8 \alpha_3^3 - 2536465 \alpha_2^8 x_1^2 x_2 \alpha_3^3 \alpha_1^2 \\
& + 10837355 \alpha_2^6 x_1^2 x_2 \alpha_1^4 \alpha_3^3 + 207265 \alpha_2^6 x_1^2 x_2 \alpha_1^3 \alpha_3^4 + 871080 \alpha_2^6 x_1^2 x_2 \alpha_1^6 \alpha_3 \\
& - 1501275 \alpha_2^6 x_1^2 x_2 \alpha_3^5 \alpha_1^2 + 745585 \alpha_2^4 x_1^2 x_2 \alpha_3^6 \alpha_1^3 - 304800 \alpha_2^{11} x_1^2 x_4 \alpha_1
\end{aligned}$$

$$\begin{aligned}
& -949200 \alpha_2^{11} x_1^2 x_4 \alpha_3 - 161544 \alpha_2^9 x_1^2 x_4 \alpha_1^3 - 3744 \alpha_2^7 x_2^2 x_4 \alpha_1^5 \\
& - 17298 \alpha_2^5 x_1^2 x_4 \alpha_3^7 - 100140 \alpha_2^7 x_2^3 \alpha_3^5 \alpha_1 - 30840 \alpha_2^7 x_1^2 x_4 \alpha_1^5 \\
& - 1728 \alpha_2^5 x_1^2 x_4 \alpha_1^7 - 167712 \alpha_2^7 x_1^2 x_4 \alpha_3^5 + 83940 \alpha_2^3 x_2^3 \alpha_1^4 \alpha_3^6 \\
& - 517510 \alpha_2^5 x_2^3 \alpha_1^3 \alpha_3^5 + 1394370 \alpha_2^5 x_2^3 \alpha_1^5 \alpha_3^3 + 91320 \alpha_2^5 x_2^3 \alpha_1^2 \alpha_3^6 \\
& - 27500 \alpha_2^3 x_2^3 \alpha_1^3 \alpha_3^7 - 922770 \alpha_2^9 x_2^3 \alpha_1^3 \alpha_3^3 - 336020 \alpha_2^3 x_2^3 \alpha_1^6 \alpha_3^4 \\
& + 1532390 \alpha_2^9 x_2^3 \alpha_1^3 \alpha_3^3 + 1069770 \alpha_2^7 x_2^3 \alpha_1^2 \alpha_3^4 - 64320 \alpha_2^5 x_2^3 \alpha_1^4 \alpha_3^4 \\
& - 1137320 \alpha_2^7 x_2^3 \alpha_1^3 \alpha_3^3 + 2602600 \alpha_2^9 x_2^3 \alpha_1^2 \alpha_3^2 - 7200 \alpha_2^3 x_2^3 \alpha_1^8 \alpha_3^2 \\
& + 14400 \alpha_2^5 x_2^3 \alpha_1^7 \alpha_3 + 96440 \alpha_2^3 x_2^3 \alpha_1^7 \alpha_3^3 - 2185710 \alpha_2^7 x_2^3 \alpha_1^4 \alpha_3^2 \\
& - 2138460 \alpha_2^{11} x_2^3 \alpha_1 \alpha_3 - 208175 \alpha_2^3 x_1^2 x_4 \alpha_1^5 \alpha_3^5 - 312180 \alpha_2^5 x_2^3 \alpha_1^6 \alpha_3^2 \\
& + 335040 \alpha_2^7 x_2^3 \alpha_1^5 \alpha_3 + 120500 \alpha_2^3 x_2^3 \alpha_1^5 \alpha_3^5 + 1080000 x_3^3 \alpha_2^{12} \\
& + 25625 x_3^3 \alpha_2^8 \alpha_3^3 \alpha_1 + 142575 x_3^3 \alpha_1^3 \alpha_3^7 \alpha_2^2 - 1457700 x_3^3 \alpha_1^6 \alpha_3^4 \alpha_2^2 \\
& - 13500 x_3^3 \alpha_1^2 \alpha_3^8 \alpha_2^2 - 1462435 \alpha_2^{10} x_1 x_2^2 \alpha_1^3 - 1722250 x_3^3 \alpha_2^6 \alpha_3^4 \alpha_1^2 \\
& - 385585 \alpha_2^{10} x_1 x_2^2 \alpha_3^3 - 657600 x_3^3 \alpha_1^4 \alpha_3^6 \alpha_2^2 + 2013425 x_3^3 \alpha_2^4 \alpha_3^5 \alpha_1^3 \\
& + 6095875 x_3^3 \alpha_1^5 \alpha_3^3 \alpha_2^4 - 615500 \alpha_2^{12} x_1 x_2^2 \alpha_1 - 770500 \alpha_2^{12} x_1 x_2^2 \alpha_3 \\
& - 15840 \alpha_2^6 x_1 x_2^2 \alpha_1^7 - 43380 \alpha_2^8 x_1 x_2^2 \alpha_3^5 + 1714950 x_3^3 \alpha_1^5 \alpha_3^5 \alpha_2^2 \\
& + 287475 x_3^3 \alpha_1^7 \alpha_3^3 \alpha_2^2 - 3659625 x_3^3 \alpha_2^8 \alpha_3^2 \alpha_1^2 - 804510 \alpha_2^{11} x_1^2 x_2 \alpha_3^2 \\
& - 35515 \alpha_2^9 x_1^2 x_2 \alpha_3^4 - 306800 \alpha_2^8 x_1 x_2^2 \alpha_1^5 + 2436240 x_1^3 \alpha_1^2 \alpha_2^6 \alpha_3^5 \\
& + 5771625 x_1^3 \alpha_1^2 \alpha_2^8 \alpha_3^3 - 4354445 x_1^3 \alpha_1 \alpha_2^{10} \alpha_3^2 - 1931590 x_1^3 \alpha_1 \alpha_2^8 \alpha_3^4 \\
& - 179895 x_1^3 \alpha_1 \alpha_2^6 \alpha_3^6 - 6871655 x_1^3 \alpha_1^2 \alpha_2^{10} \alpha_3 + 11697875 x_1^3 \alpha_1^3 \alpha_2^8 \alpha_3^2 \\
& + 269425 x_1^3 \alpha_1^4 \alpha_2^2 \alpha_3^7 + 692375 x_1^3 \alpha_1^4 \alpha_2^4 \alpha_3^5 - 4314710 x_1^3 \alpha_1^4 \alpha_2^8 \alpha_3 \\
& - 10197715 x_1^3 \alpha_1^4 \alpha_2^6 \alpha_3^3 - 25500 x_3^3 \alpha_2^8 \alpha_3^4 + 340800 x_3^3 \alpha_2^{10} \alpha_3^2 \\
& - 10800 x_3^3 \alpha_2^6 \alpha_3^6 - 1716700 x_3^3 \alpha_2^{10} \alpha_1^2 + 9720 x_1^3 \alpha_1^9 \alpha_2^2 \alpha_3^2 \\
& - 162195 x_1^3 \alpha_1^8 \alpha_2^2 \alpha_3^3 - 19440 x_1^3 \alpha_1^8 \alpha_2^4 \alpha_3 - 1339530 x_1^3 \alpha_1^3 \alpha_2^4 \alpha_3^6 \\
& - 3351485 x_1^3 \alpha_1^3 \alpha_2^6 \alpha_3^4 - 53245 x_1^3 \alpha_1^3 \alpha_2^2 \alpha_3^8 + 528345 x_1^3 \alpha_1^7 \alpha_2^4 \alpha_3^2 \\
& + 766295 x_1^3 \alpha_1^7 \alpha_2^2 \alpha_3^4 + 25200 \alpha_2^7 x_3^2 x_4 \alpha_3^5 + 18000 \alpha_2^5 x_3^2 x_4 \alpha_1^7 \\
& + 767950 \alpha_2^9 x_3^2 x_4 \alpha_1^3 + 1080 \alpha_2^2 x_3^2 x_4 \alpha_3^{10} + 202000 \alpha_2^{11} x_3^2 x_4 \alpha_3 \\
& - 5293000 \alpha_2^{11} x_3^2 x_4 \alpha_1 - 360 x_3^3 \alpha_3^{11} + 8922900 x_3^3 \alpha_2^6 \alpha_1^3 \alpha_3^3 \\
& - 1405900 x_3^3 \alpha_2^{10} \alpha_1 \alpha_3 - 6652325 x_3^3 \alpha_2^4 \alpha_1^4 \alpha_3^4 - 19800 x_3^3 \alpha_1^6 \alpha_2^6
\end{aligned}$$



$$\begin{aligned}
& -377875 x_3^3 \alpha_2^8 \alpha_1^4 + 93750 x_3^3 \alpha_1^3 \alpha_3^8 + 93750 x_3^3 \alpha_1^5 \alpha_3^6 - 36060 x_3^3 \alpha_1^2 \alpha_3^9 \\
& + 6250 x_3^3 \alpha_1^7 \alpha_3^4 + 6250 x_3^3 \alpha_3^{10} \alpha_1 - 36060 x_3^3 \alpha_1^6 \alpha_3^5 - 127160 x_3^3 \alpha_1^4 \alpha_3^7 \\
& - 360 x_3^3 \alpha_1^8 \alpha_3^3 - 320550 x_3^3 \alpha_2^4 \alpha_3^6 \alpha_1^2 + 24300 x_3^3 \alpha_2^4 \alpha_3^7 \alpha_1 \\
& + 203475 x_3^3 \alpha_2^6 \alpha_3^5 \alpha_1 + 36000 x_3^3 \alpha_1^7 \alpha_2^4 \alpha_3 + 5770980 x_1^3 \alpha_1^5 \alpha_2^6 \alpha_3^2 \\
& + 4579925 x_1^3 \alpha_1^5 \alpha_2^4 \alpha_3^4 + 19230 x_1^3 \alpha_1^5 \alpha_2^2 \alpha_3^6 - 16200 x_3^3 \alpha_1^8 \alpha_3^2 \alpha_2^2 \\
& + 6591375 x_3^3 \alpha_2^8 \alpha_1^3 \alpha_3 + 1027925 x_3^3 \alpha_2^6 \alpha_1^5 \alpha_3 - 937525 x_3^3 \alpha_2^4 \alpha_1^6 \alpha_3^2 \\
& - 9512850 x_3^3 \alpha_2^6 \alpha_1^4 \alpha_3^2 - 980 \alpha_2^2 x_3^2 x_2 \alpha_1^2 \alpha_3^9 - 720 \alpha_2^3 x_3^2 x_2 \alpha_3^9 \\
& + 2700 \alpha_2^5 x_3^2 x_4 \alpha_3^6 \alpha_1 + 14134300 \alpha_2^9 x_3^2 x_4 \alpha_1^2 \alpha_3 + 9262025 \alpha_2^3 x_3^2 x_4 \alpha_1^5 \alpha_3^4 \\
& - 231300 \alpha_2^2 x_3^2 x_4 \alpha_1^8 \alpha_3^3 + 10800 \alpha_2 x_3^2 x_4 \alpha_1^9 \alpha_3^2 + 305000 \alpha_2^7 x_3^2 x_4 \alpha_1^5 \\
& + 7588900 \alpha_2^5 x_3^2 x_4 \alpha_1^3 \alpha_3^4 - 817000 \alpha_2^5 x_3^2 x_4 \alpha_1^6 \alpha_3 - 6274550 \alpha_2^5 x_3^2 x_4 \alpha_1^4 \alpha_3^3 \\
& - 134575 \alpha_2^7 x_3^3 \alpha_1^5 + 1704775 \alpha_2^3 x_3^2 x_4 \alpha_3^6 \alpha_1^3 - 1762225 \alpha_2^7 x_3^2 x_4 \alpha_3^3 \alpha_1^2 \\
& - 92700 \alpha_2^3 x_3^2 x_4 \alpha_3^7 \alpha_1^2 - 5598275 \alpha_2^3 x_3^2 x_4 \alpha_1^6 \alpha_3^3 - 8943375 \alpha_2^7 x_3^2 x_4 \alpha_3^2 \alpha_1^3 \\
& - 8100 \alpha_2^9 x_3^3 \alpha_3^3 + 2203200 \alpha_2 x_3^2 x_4 \alpha_1^5 \alpha_3^6 - 28800 \alpha_2^3 x_3^2 x_4 \alpha_1^8 \alpha_3 \\
& + 7447400 \alpha_2^5 x_3^2 x_4 \alpha_1^5 \alpha_3^2 - 7315125 \alpha_2^3 x_3^2 x_4 \alpha_1^4 \alpha_3^5 + 1501200 \alpha_2 x_3^2 x_4 \alpha_1^7 \alpha_3^4 \\
& - 2885400 \alpha_2 x_3^2 x_4 \alpha_1^6 \alpha_3^5 - 4118275 \alpha_2^7 x_3^2 x_4 \alpha_1^4 \alpha_3 - 916750 \alpha_2^9 x_3^2 x_4 \alpha_3^2 \alpha_1 \\
& + 53075 \alpha_2^7 x_3^2 x_4 \alpha_3^4 \alpha_1 + 743300 \alpha_2^3 x_3^2 x_4 \alpha_1^7 \alpha_3^2 - 663300 \alpha_2 x_3^2 x_4 \alpha_1^4 \alpha_3^7 \\
& - 1231450 \alpha_2^5 x_3^2 x_4 \alpha_3^5 \alpha_1^2 - 6300 \alpha_2^5 x_3^3 \alpha_1^7 + 64800 \alpha_2 x_3^2 x_4 \alpha_1^3 \alpha_3^8 \\
& + 136900 \alpha_2^9 x_3^2 x_4 \alpha_3^3 - 690600 \alpha_2^2 x_2^2 x_3 \alpha_1^6 \alpha_3^5 + 888000 \alpha_2 x_2^2 x_3 \alpha_1^7 \alpha_3^2 \\
& - 4086600 \alpha_2^6 x_2^2 x_3 \alpha_1^4 \alpha_3^3 + 4653850 \alpha_2 x_2^2 x_3 \alpha_3^8 \alpha_1^2 - 287300 \alpha_2^2 x_2^2 x_3 \alpha_1^8 \alpha_3^3 \\
& + 18000 \alpha_2^2 x_2^2 x_3 \alpha_1^9 \alpha_3^2 + 313400 \alpha_2^8 x_2^2 x_3 \alpha_1^5 + 480000 \alpha_2^{13} x_1 x_3 x_2 \\
& - 64908 x_1^2 x_3 \alpha_1^3 \alpha_3^9 + 1499150 \alpha_2^4 x_2^2 x_3 \alpha_1^4 \alpha_3^5 + 1108600 \alpha_2^2 x_2^2 x_3 \alpha_1^7 \alpha_3^4 \\
& + 510000 \alpha_2^{12} x_2^2 x_3 \alpha_3 - 255000 \alpha_2^{12} x_2^2 x_3 \alpha_1 + 18000 \alpha_2^8 x_2^2 x_3 \alpha_3^5 \\
& + 18000 \alpha_2^6 x_2^2 x_3 \alpha_1^7 - 16200 \alpha_2^2 x_2^2 x_3 \alpha_1^3 \alpha_3^8 - 210400 \alpha_2^2 x_2^2 x_3 \alpha_1^5 \alpha_3^6 \\
& - 36000 \alpha_2^4 x_2^2 x_3 \alpha_1^8 \alpha_3 + 7453350 \alpha_2^6 x_2^2 x_3 \alpha_1^5 \alpha_3^2 - 4680 \alpha_2^3 x_1 x_4 x_3 \alpha_3^8 \alpha_1 \\
& + 3240 \alpha_2^5 x_1 x_4 x_3 \alpha_3^7 + 1440 \alpha_2 x_1 x_4 x_3 \alpha_1^2 \alpha_3^9 + 1440 \alpha_2^4 x_4 x_3 x_2 \alpha_3^8 \\
& + 16000 \alpha_2^6 x_4 x_3 x_2 \alpha_3^6 + 520 \alpha_2^2 x_4 x_3 x_2 \alpha_1^2 \alpha_3^8 - 16520 \alpha_2^4 x_4 x_3 x_2 \alpha_3^7 \alpha_1 \\
& - 1440 \alpha_2^2 x_4 x_3 x_2 \alpha_3^9 \alpha_1 + 280000 \alpha_2^{12} x_4^2 x_3 + 156300 \alpha_2^{10} x_2^2 x_3 \alpha_3^3 \\
& + 1326650 \alpha_2^{10} x_2^2 x_3 \alpha_1^3 + 360 \alpha_2^3 x_4^3 \alpha_3^8 + 1768925 \alpha_2^4 x_4^2 x_3 \alpha_1^6 \alpha_3^2
\end{aligned}$$

$$\begin{aligned}
& -2143150 \alpha_2^6 x_4^2 x_3 \alpha_1^5 \alpha_3 + 3600 \alpha_2^2 x_4^2 x_3 \alpha_1^9 \alpha_3 - 90000 \alpha_2^{11} x_4^3 \alpha_3 \\
& -29510450 \alpha_2^6 x_4^2 x_3 \alpha_1^3 \alpha_3^3 + 18931375 \alpha_2^4 x_4^2 x_3 \alpha_1^4 \alpha_3^4 \\
& -5603900 \alpha_2^{10} x_4^2 x_3 \alpha_1 \alpha_3 + 25782150 \alpha_2^6 x_4^2 x_3 \alpha_1^4 \alpha_3^2 - 478400 \alpha_2^2 x_4^2 x_3 \alpha_1^7 \alpha_3^3 \\
& + 16100 \alpha_2^4 x_4^2 x_3 \alpha_1^7 \alpha_3 - 6700 \alpha_2^2 x_4^2 x_3 \alpha_1^8 \alpha_3^2 - 19529025 \alpha_2^8 x_4^2 x_3 \alpha_1^3 \alpha_3 \\
& + 20413375 \alpha_2^8 x_4^2 x_3 \alpha_1^2 \alpha_3^2 - 4510400 \alpha_2^2 x_4^2 x_3 \alpha_1^5 \alpha_3^5 - 1080 \alpha_2^2 x_4^2 x_3 \alpha_3^9 \\
& + 296100 \alpha_2^4 x_4^2 x_3 \alpha_1^2 \alpha_3^6 - 15505425 \alpha_2^4 x_4^2 x_3 \alpha_1^5 \alpha_3^3 \\
& - 4917875 \alpha_2^4 x_4^2 x_3 \alpha_1^3 \alpha_3^5 - 143100 \alpha_2^6 x_4^2 x_3 \alpha_3^5 \alpha_1 + 852625 \alpha_2^8 x_4^2 x_3 \alpha_1^4 \\
& - 154800 \alpha_2^2 x_4^2 x_3 \alpha_1^3 \alpha_3^7 + 1555700 \alpha_2^2 x_4^2 x_3 \alpha_1^4 \alpha_3^6 + 3591000 \alpha_2^2 x_4^2 x_3 \alpha_1^6 \alpha_3^4 \\
& - 2003175 \alpha_2^8 x_4^2 x_3 \alpha_1 \alpha_3^3 + 5230550 \alpha_2^6 x_4^2 x_3 \alpha_1^2 \alpha_3^4 + 1620 \alpha_2^2 x_1 x_3^2 \alpha_3^9 \alpha_1 \\
& - 9400 \alpha_2^6 x_4^2 x_3 \alpha_1^6 - 1620 \alpha_2^4 x_1 x_3^2 \alpha_3^8 - 3600 \alpha_2^4 x_4^2 x_3 \alpha_1^8 \\
& + 134800 \alpha_2^{10} x_4^2 x_3 \alpha_3^2 + 1800 \alpha_2^8 x_4^2 x_3 \alpha_3^4 + 5661300 \alpha_2^{10} x_4^2 x_3 \alpha_1^2 \\
& - 248450 \alpha_2^9 x_4^3 \alpha_1^3 + 8980 \alpha_2^3 x_3^2 x_2 \alpha_3^8 \alpha_1 + 2225000 \alpha_2^{11} x_4^3 \alpha_1 \\
& - 8000 \alpha_2^5 x_3^2 x_2 \alpha_3^7 + 720 \alpha_2^2 x_3^2 x_2 \alpha_3^{10} \alpha_1 - 1913400 \alpha_2 x_1 x_3 x_2 \alpha_1^7 \alpha_3^5 \\
& + 8002050 \alpha_2^7 x_1 x_3 x_2 \alpha_1^4 \alpha_3^2 - 1899950 \alpha_2^9 x_1 x_3 x_2 \alpha_1^3 \alpha_3 \\
& + 63000 \alpha_2^5 x_1 x_3 x_2 \alpha_3^7 \alpha_1 + 645000 \alpha_2^7 x_1 x_3 x_2 \alpha_3^5 \alpha_1 - 1054800 \alpha_2^5 x_1 x_3 x_2 \alpha_1^7 \alpha_3 \\
& + 1006200 \alpha_2^3 x_1 x_3 x_2 \alpha_1^8 \alpha_3^2 + 1706750 \alpha_2^9 x_1 x_3 x_2 \alpha_3^3 \alpha_1 \\
& - 61200 \alpha_2 x_1 x_3 x_2 \alpha_1^4 \alpha_3^8 - 46200 \alpha_2^{11} x_1 x_3 x_2 \alpha_1^2 + 1763450 \alpha_2^5 x_1 x_3 x_2 \alpha_3^5 \alpha_1^3 \\
& - 63600 \alpha_2 x_1 x_3 x_2 \alpha_1^5 \alpha_3^7 - 12032850 \alpha_2^5 x_1 x_3 x_2 \alpha_1^5 \alpha_3^3 \\
& + 7890350 \alpha_2^3 x_1 x_3 x_2 \alpha_1^6 \alpha_3^4 - 55800 \alpha_2^3 x_1 x_3 x_2 \alpha_1^2 \alpha_3^8 - 23400 \alpha_2^7 x_1 x_3 x_2 \alpha_3^6 \\
& - 4544750 \alpha_2^3 x_1 x_3 x_2 \alpha_1^5 \alpha_3^5 - 5407650 \alpha_2^3 x_1 x_3 x_2 \alpha_1^7 \alpha_3^3 \\
& + 5589350 \alpha_2^9 x_1 x_3 x_2 \alpha_3^2 \alpha_1^2 - 2771250 \alpha_2^7 x_1 x_3 x_2 \alpha_3^4 \alpha_1^2 \\
& - 351200 \alpha_2^{11} x_1 x_3 x_2 \alpha_3^2 - 284150 \alpha_2^3 x_1 x_3 x_2 \alpha_1^4 \alpha_3^6 + 402200 \alpha_2^3 x_1 x_3 x_2 \alpha_1^3 \alpha_3^7 \\
& - 803400 \alpha_2^5 x_1 x_3 x_2 \alpha_3^6 \alpha_1^2 + 21600 \alpha_2^5 x_1 x_3 x_2 \alpha_1^8 + 367800 \alpha_2^7 x_1 x_3 x_2 \alpha_1^6 \\
& - 43200 \alpha_2^3 x_1 x_3 x_2 \alpha_1^9 \alpha_3 - 319200 \alpha_2 x_1 x_3 x_2 \alpha_1^9 \alpha_3^3 + 21600 \alpha_2 x_1 x_3 x_2 \alpha_1^{10} \alpha_3^2 \\
& - 5720550 \alpha_2^7 x_1 x_3 x_2 \alpha_1^5 \alpha_3 + 50400 \alpha_2^4 x_2 x_3 \alpha_3^7 \alpha_1^2 - 52200 \alpha_2^6 x_2^2 x_3 \alpha_3^6 \alpha_1 \\
& - 122400 \alpha_2^{10} x_2^2 x_3 \alpha_1^2 \alpha_3 + 2763000 \alpha_2^4 x_2^2 x_3 \alpha_1^5 \alpha_3^4 - 4726250 \alpha_2^4 x_2^2 x_3 \alpha_1^6 \alpha_3^3 \\
& + 2391600 \alpha_2^8 x_2^2 x_3 \alpha_3^2 \alpha_1^3 - 1296 \alpha_2^3 x_1 x_3 x_2 \alpha_3^9 + 16200 \alpha_2 x_1 x_3 x_2 \alpha_1^3 \alpha_3^9 \\
& - 182600 \alpha_2^9 x_1 x_3 x_2 \alpha_3^4 + 77900 \alpha_2^2 x_2^2 x_3 \alpha_1^4 \alpha_3^7 + 780000 \alpha_2^6 x_2^2 x_3 \alpha_3^5 \alpha_1^2
\end{aligned}$$

$$\begin{aligned}
& -428700 \alpha_2^4 x_2^2 x_3^6 \alpha_3^3 \alpha_1^3 - 3899850 \alpha_2^6 x_2^2 x_3^3 \alpha_1^4 \alpha_3^4 - 914100 \alpha_2^6 x_2^2 x_3^6 \alpha_1^6 \alpha_3 \\
& - 5162350 \alpha_2^8 x_2^2 x_3^4 \alpha_1^4 \alpha_3 - 2552750 \alpha_2^{10} x_2^2 x_3^2 \alpha_1^2 \alpha_3 - 585500 \alpha_2^8 x_2^2 x_3^4 \alpha_1^4 \alpha_3 \\
& + 720 \alpha_2^7 x_2^3 \alpha_3^6 + 635600 \alpha_2^{11} x_1^2 x_4^2 \alpha_3^2 + 2126625 \alpha_2^5 x_2^2 x_4^6 \alpha_1^6 \alpha_3^2 \\
& - 194125 \alpha_2^3 x_2^2 x_4^5 \alpha_1^5 \alpha_3^5 - 2407425 \alpha_2^7 x_2^2 x_4^5 \alpha_1^5 \alpha_3^5 - 2927900 \alpha_2^{11} x_1^2 x_4^2 \alpha_1^2 \\
& - 10800 \alpha_2^5 x_1^2 x_4^8 \alpha_1^8 - 227700 \alpha_2^7 x_1^2 x_4^6 \alpha_1^6 - 615275 \alpha_2^3 x_2^2 x_4^7 \alpha_1^3 \alpha_3^3 \\
& - 138600 \alpha_2^5 x_2^2 x_4^7 \alpha_1^7 \alpha_3^7 + 69300 \alpha_2^3 x_2^2 x_4^8 \alpha_1^8 \alpha_3^2 + 13490175 \alpha_2^7 x_2^2 x_4^4 \alpha_1^4 \alpha_3^2 \\
& - 1985375 \alpha_2^9 x_2^2 x_4^2 \alpha_1^2 \alpha_3^2 + 1058325 \alpha_2^7 x_2^2 x_4^3 \alpha_1^3 \alpha_3^3 + 175075 \alpha_2^5 x_2^2 x_4^4 \alpha_1^4 \alpha_3^4 \\
& + 1066100 \alpha_2^{11} x_2^2 x_4^2 \alpha_1^2 \alpha_3^2 - 120000 \alpha_2^{13} x_2^2 x_4^2 + 18900 \alpha_2^3 x_2^2 x_4^3 \alpha_1^3 \alpha_3^7 \\
& - 53100 \alpha_2^5 x_2^2 x_4^2 \alpha_1^2 \alpha_3^6 - 7675775 \alpha_2^5 x_2^2 x_4^5 \alpha_1^5 \alpha_3^3 + 3122300 \alpha_2^{11} x_2^2 x_4^2 \alpha_1^2 \\
& - 91200 \alpha_2^{11} x_2^2 x_4^2 \alpha_3^2 - 15300 \alpha_2^9 x_2^2 x_4^4 \alpha_3^4 + 49500 \alpha_2^7 x_2^2 x_4^5 \alpha_3^5 \alpha_1 \\
& + 402975 \alpha_2^5 x_2^2 x_4^3 \alpha_1^3 \alpha_3^5 - 76025 \alpha_2^3 x_2^2 x_4^4 \alpha_1^4 \alpha_3^6 + 1661225 \alpha_2^3 x_2^2 x_4^6 \alpha_1^6 \alpha_3^4 \\
& + 433325 \alpha_2^9 x_2^2 x_4^3 \alpha_1^3 \alpha_3^3 - 669075 \alpha_2^7 x_2^2 x_4^2 \alpha_1^2 \alpha_3^4 - 10597925 \alpha_2^9 x_2^2 x_4^3 \alpha_1^3 \alpha_3^3 \\
& + 180 \alpha_2^4 x_1^4 x_4^2 \alpha_3^7 \alpha_1 + 896075 \alpha_2^9 x_2^2 x_4^4 \alpha_1^4 + 69300 \alpha_2^7 x_2^2 x_4^6 \alpha_1^6 \\
& - 180 \alpha_2^6 x_1^2 x_4^2 \alpha_3^6 + 10420 \alpha_2^5 x_2^2 x_4^2 \alpha_3^6 \alpha_1 + 720 \alpha_2^3 x_2^2 x_4^8 \alpha_3^8 \alpha_1 \\
& - 980 \alpha_2^3 x_2^2 x_4^7 \alpha_3^7 \alpha_1^2 + 900 \alpha_2^6 x_1^3 \alpha_3^7 - 9440 \alpha_2^7 x_2^2 x_4^5 \alpha_3^5 \\
& + 1054850 \alpha_2^9 x_4^3 \alpha_3^2 \alpha_1 - 720 \alpha_2^5 x_2^2 x_4^7 \alpha_3^7 - 154800 \alpha_2^5 x_4^3 \alpha_1^2 \alpha_3^5 \\
& - 30175 \alpha_2^3 x_4^3 \alpha_1^3 \alpha_3^6 + 1616075 \alpha_2^3 x_4^3 \alpha_1^5 \alpha_3^4 - 8445500 \alpha_2^9 x_4^3 \alpha_1^2 \alpha_3^2 \\
& + 403725 \alpha_2^7 x_4^3 \alpha_1^4 \alpha_3^4 - 7164650 \alpha_2^5 x_4^3 \alpha_1^4 \alpha_3^3 + 11769075 \alpha_2^7 x_4^3 \alpha_1^3 \alpha_3^2 \\
& - 125100 \alpha_2^5 x_4^3 \alpha_1^5 \alpha_3^2 + 237650 \alpha_2^5 x_4^3 \alpha_1^6 \alpha_3^6 - 2572825 \alpha_2^7 x_4^3 \alpha_3^3 \alpha_1^2 \\
& + 6300 \alpha_2^3 x_4^3 \alpha_1^8 \alpha_3^8 + 86400 \alpha_2^7 x_4^3 \alpha_3^4 \alpha_1 + 2309600 \alpha_2^5 x_4^3 \alpha_1^3 \alpha_3^4 \\
& + 76500 \alpha_2^3 x_4^3 \alpha_3^6 \alpha_1^3 - 701625 \alpha_2^3 x_4^3 \alpha_1^4 \alpha_3^5 - 103075 \alpha_2^3 x_4^3 \alpha_1^7 \alpha_3^2 \\
& + 262125 x_1^2 x_3^6 \alpha_1^6 \alpha_2^6 \alpha_3^6 + 1747050 x_1^2 x_3^6 \alpha_1^4 \alpha_2^4 \alpha_3^3 - 54450 x_1^2 x_3^6 \alpha_1^6 \alpha_2^2 \alpha_3^5 \\
& + 648 x_1^2 x_3^2 \alpha_2^2 \alpha_3^{10} - 70200 x_1^2 x_3^2 \alpha_2^8 \alpha_3^5 - 564900 x_1^2 x_3^2 \alpha_2^{10} \alpha_3^3 \\
& - 1194000 x_1^2 x_3^2 \alpha_2^{12} \alpha_3^{12} - 648 x_1^2 x_3^2 \alpha_1^{11} \alpha_3^{11} - 96450 x_1^2 x_3^2 \alpha_1^3 \alpha_2^{10} \\
& - 64908 x_1^2 x_3^7 \alpha_1^5 \alpha_3^5 - 648 x_1^2 x_3^9 \alpha_1^3 \alpha_3^3 + 168750 x_1^2 x_3^6 \alpha_1^6 \alpha_3^6 \\
& + 11250 x_1^2 x_3^8 \alpha_1^4 \alpha_3^4 + 11250 x_1^2 x_3^2 \alpha_1^2 \alpha_3^{10} - 5400 x_1^2 x_3^7 \alpha_1^7 \alpha_2^6 \\
& - 228888 x_1^2 x_3^5 \alpha_1^5 \alpha_3^7 + 168750 x_1^2 x_3^4 \alpha_1^4 \alpha_3^8 - 287325 x_1^2 x_3^7 \alpha_1^4 \alpha_2^4 \alpha_3^2 \\
& + 766800 x_1^2 x_3^5 \alpha_1^2 \alpha_2^6 \alpha_3^6 + 1363350 x_1^2 x_3^5 \alpha_1^4 \alpha_2^4 \alpha_3^4 - 503100 x_1^2 x_3^7 \alpha_1^7 \alpha_2^2 \alpha_3^4
\end{aligned}$$

$$\begin{aligned}
& -2081250 x_1^2 x_3 \alpha_1^5 \alpha_2^6 \alpha_3^2 + 1651875 x_1^2 x_3 \alpha_1^3 \alpha_2^4 \alpha_3^6 + 10800 x_1^2 x_3 \alpha_1^8 \alpha_2^4 \alpha_3 \\
& + 104175 x_1^2 x_3 \alpha_1^8 \alpha_2^2 \alpha_3^3 - 5400 x_1^2 x_3 \alpha_1^9 \alpha_2^2 \alpha_3^2 - 364725 x_1^2 x_3 \alpha_1^4 \alpha_2^2 \alpha_3^7 \\
& + 9247050 x_1^2 x_3 \alpha_1^3 \alpha_2^8 \alpha_3^2 + 56700 x_1^2 x_3 \alpha_1^3 \alpha_2^2 \alpha_3^8 + 10378050 x_1^2 x_3 \alpha_1^3 \alpha_2^6 \alpha_3^4 \\
& - 183600 x_1^2 x_3 \alpha_1^2 \alpha_2^4 \alpha_3^7 - 11333250 x_1^2 x_3 \alpha_1^2 \alpha_2^8 \alpha_3^3 \\
& - 2774475 x_1^2 x_3 \alpha_1^2 \alpha_2^6 \alpha_3^5 - 6997800 x_1^2 x_3 \alpha_1^2 \alpha_2^{10} \alpha_3 + 197100 x_1^2 x_3 \alpha_1^6 \alpha_2^6 \alpha_3^6 \\
& + 1296 \alpha_2 x_1 x_3 x_2 \alpha_3^{10} \alpha_1 + 2001000 x_1^2 x_3 \alpha_1 \alpha_2^{12} - 78975 x_1^2 x_3 \alpha_1^5 \alpha_2^8 \\
& - 8969250 \alpha_2^7 x_1 x_3 x_2 \alpha_1^3 \alpha_3^3 + 8676050 \alpha_2^5 x_1 x_3 x_2 \alpha_1^4 \alpha_3^4 \\
& + 1480050 \alpha_2^9 x_1 x_3 x_2 \alpha_1^4 + 996000 \alpha_2 x_1 x_3 x_2 \alpha_1^6 \alpha_3^6 + 8324550 \alpha_2^5 x_1 x_3 x_2 \alpha_1^6 \alpha_3^2 \\
& + 1323600 \alpha_2 x_1 x_3 x_2 \alpha_1^8 \alpha_3^4 - 2227400 \alpha_2^{11} x_1 x_3 x_2 \alpha_1 \alpha_3 - 1440 \alpha_2^5 x_2^3 \alpha_3^7 \alpha_1 \\
& + 720 \alpha_2^3 x_2^3 \alpha_1^2 \alpha_3^8 - 192600 \alpha_2 x_1^2 x_4 \alpha_1^8 \alpha_3^4 - 5167300 \alpha_2^{11} x_1^2 x_4 \alpha_1 \alpha_3 \\
& + 39600 \alpha_2 x_1^2 x_4 \alpha_1^6 \alpha_3^6 + 648 \alpha_2 x_1^2 x_4 \alpha_3^{10} \alpha_1 + 117900 \alpha_2 x_1^2 x_4 \alpha_1^9 \alpha_3^3 \\
& - 10800 \alpha_2 x_1^2 x_4 \alpha_1^{10} \alpha_3^2 + 4077525 \alpha_2^7 x_1^2 x_4 \alpha_1^5 \alpha_3 - 4141425 \alpha_2^5 x_1^2 x_4 \alpha_1^6 \alpha_3^2 \\
& + 21600 \alpha_2^3 x_1^2 x_4 \alpha_1^9 \alpha_3 - 6094025 \alpha_2^7 x_1^2 x_4 \alpha_1^3 \alpha_3^3 + 1856425 \alpha_2^5 x_1^2 x_4 \alpha_1^4 \alpha_3^4 \\
& - 1402075 \alpha_2^9 x_1^2 x_4 \alpha_1^4 - 16200 \alpha_2 x_1^2 x_4 \alpha_1^4 \alpha_3^8 + 147600 \alpha_2^5 x_1^2 x_4 \alpha_3^6 \alpha_1^2 \\
& - 189900 \alpha_2^7 x_1^2 x_4 \alpha_3^5 \alpha_1 + 573300 \alpha_2^5 x_1^2 x_4 \alpha_1^7 \alpha_3 + 9900 \alpha_2 x_1^2 x_4 \alpha_1^5 \alpha_3^7 \\
& + 7001675 \alpha_2^5 x_1^2 x_4 \alpha_1^5 \alpha_3^3 - 1596725 \alpha_2^3 x_1^2 x_4 \alpha_1^6 \alpha_3^4 - 13500 \alpha_2^3 x_1^2 x_4 \alpha_1^3 \alpha_3^7 \\
& + 1160000 \alpha_2^{13} x_1^2 x_4 - 1663175 \alpha_2^5 x_1^2 x_4 \alpha_3^5 \alpha_1^3 - 2277225 \alpha_2^9 x_1^2 x_4 \alpha_3^3 \alpha_1 \\
& - 463500 \alpha_2^3 x_1^2 x_4 \alpha_1^8 \alpha_3^2 + 52200 \alpha_2 x_1^2 x_4 \alpha_1^7 \alpha_3^5 - 12349875 \alpha_2^7 x_1^2 x_4 \alpha_1^4 \alpha_3^2 \\
& + 9820625 \alpha_2^9 x_1^2 x_4 \alpha_1^3 \alpha_3 - 63000 \alpha_2^6 x_1 x_4 x_2 \alpha_3^6 \alpha_1 - 8738400 \alpha_2^{10} x_1 x_4 x_2 \alpha_1^2 \alpha_3^2 \\
& + 11859600 \alpha_2^4 x_1 x_4 x_2 \alpha_1^5 \alpha_3^4 + 55800 \alpha_2^2 x_1 x_4 x_2 \alpha_1^9 \alpha_3^2 + 55800 \alpha_2^6 x_1 x_4 x_2 \alpha_1^7 \\
& + 843800 \alpha_2^8 x_1 x_4 x_2 \alpha_1^5 - 689000 \alpha_2^2 x_1 x_4 x_2 \alpha_1^8 \alpha_3^3 + 55800 \alpha_2^4 x_1 x_4 x_2 \alpha_3^7 \alpha_1^2 \\
& - 11038700 \alpha_2^4 x_1 x_4 x_2 \alpha_1^6 \alpha_3^3 + 19860000 \alpha_2^8 x_1 x_4 x_2 \alpha_3^2 \alpha_1^3 \\
& + 1658575 \alpha_2^3 x_1^2 x_4 \alpha_1^7 \alpha_3^3 + 8413475 \alpha_2^9 x_1^2 x_4 \alpha_3^2 \alpha_1^2 \\
& + 2981175 \alpha_2^7 x_1^2 x_4 \alpha_3^4 \alpha_1^2 + 313725 \alpha_2^3 x_1^2 x_4 \alpha_1^4 \alpha_3^6 - 329600 \alpha_2^4 x_1 x_4 x_2 \alpha_3^6 \alpha_1^3 \\
& + 2028100 \alpha_2^6 x_1 x_4 x_2 \alpha_1^3 \alpha_3^4 + 708000 \alpha_2^6 x_1 x_4 x_2 \alpha_3^5 \alpha_1^2 \\
& - 2376600 \alpha_2^6 x_1 x_4 x_2 \alpha_1^6 \alpha_3 - 21888000 \alpha_2^6 x_1 x_4 x_2 \alpha_1^4 \alpha_3^3 \\
& - 250700 \alpha_2^8 x_1 x_4 x_2 \alpha_3^3 \alpha_1^2 + 23400 \alpha_2^8 x_1 x_4 x_2 \alpha_3^5 + 188000 \alpha_2^{12} x_1 x_4 x_2 \alpha_3 \\
& - 2551200 \alpha_2^2 x_1 x_4 x_2 \alpha_1^6 \alpha_3^5 - 12876900 \alpha_2^8 x_1 x_4 x_2 \alpha_1^4 \alpha_3
\end{aligned}$$

$$\begin{aligned}
& + 1458000 \alpha_2^{12} x_1 x_4 x_2 \alpha_1 + 17902500 \alpha_2^6 x_1 x_4 x_2 \alpha_1^5 \alpha_3^2 \\
& - 2023700 \alpha_2^4 x_1 x_4 x_2 \alpha_1^4 \alpha_3^5 - 111600 \alpha_2^4 x_1 x_4 x_2 \alpha_1^8 \alpha_3 \\
& + 2547000 \alpha_2^2 x_1 x_4 x_2 \alpha_1^7 \alpha_3^4 - 555100 \alpha_2^{10} x_1 x_4 x_2 \alpha_3^2 \alpha_1 \\
& - 588000 \alpha_2^8 x_1 x_4 x_2 \alpha_3^4 \alpha_1 + 2221800 \alpha_2^4 x_1 x_4 x_2 \alpha_1^7 \alpha_3^2 \\
& + 40200 \alpha_2^2 x_1 x_4 x_2 \alpha_1^4 \alpha_3^7 - 648 \alpha_2^3 x_1^2 x_4 \alpha_3^9 + 3466100 \alpha_2^{10} x_1 x_4 x_2 \alpha_1^3 \\
& + 613400 \alpha_2^2 x_1 x_4 x_2 \alpha_1^5 \alpha_3^6 + 1296 \alpha_2^4 x_1 x_4 x_2 \alpha_3^8 - 1296 \alpha_2^2 x_1 x_4 x_2 \alpha_3^9 \alpha_1 \\
& - 16200 \alpha_2^2 x_1 x_4 x_2 \alpha_1^3 \alpha_3^8 + 72000 \alpha_2^9 x_1^2 x_4 \alpha_3^4 + 169400 \alpha_2^{10} x_1 x_4 x_2 \alpha_3^3 \\
& - 720 \alpha_2 x_1^2 x_2 \alpha_1^2 \alpha_3^{10} + 1440 \alpha_2^3 x_1^2 x_2 \alpha_3^9 \alpha_1 - 8580 \alpha_2^5 x_1^2 x_2 \alpha_3^7 \alpha_1 \\
& - 720 \alpha_2^5 x_1^2 x_2 \alpha_3^8 + 900 \alpha_2^2 x_1^3 \alpha_1^2 \alpha_3^9 + 9840 \alpha_2^3 x_1^2 x_2 \alpha_1^2 \alpha_3^8 \\
& - 3700 \alpha_2 x_1^2 x_2 \alpha_1^3 \alpha_3^9 + 2440 \alpha_2^7 x_1^2 x_2 \alpha_3^6 - 570105 x_1^3 \alpha_1^6 \alpha_2^6 \alpha_3 \\
& - 3430810 x_1^3 \alpha_1^6 \alpha_2^4 \alpha_3^3 - 1800 \alpha_2^4 x_1^3 \alpha_3^8 \alpha_1 - 850130 x_1^3 \alpha_1^6 \alpha_2^2 \alpha_3^5 \Big) / \Big( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3) (9 \alpha_1^6 - 118 \alpha_1^5 \alpha_3 + 391 \alpha_1^4 \alpha_3^2 + 172 \alpha_2^2 \alpha_1^4 - 1200 \alpha_2^2 \alpha_1^3 \alpha_3 \\
& - 564 \alpha_1^3 \alpha_3^3 + 391 \alpha_1^2 \alpha_3^4 + 944 \alpha_2^4 \alpha_1^2 + 2056 \alpha_2^2 \alpha_1^2 \alpha_3^2 - 1200 \alpha_2^2 \alpha_1 \alpha_3^3 \\
& - 2912 \alpha_2^4 \alpha_1 \alpha_3 - 118 \alpha_1 \alpha_3^5 + 9 \alpha_3^6 + 1600 \alpha_2^6 + 944 \alpha_2^4 \alpha_3^2 + 172 \alpha_2^2 \alpha_3^4) \Big), \frac{1}{96} \beta^2 \\
& (5476900 x_4 x_3^2 \alpha_1^4 \alpha_3^6 \alpha_2^2 + 367420 x_2 x_3^2 \alpha_2^4 \alpha_3^7 \alpha_1 + 38516975 x_4 x_3^2 \alpha_2^4 \alpha_1^4 \alpha_3^4 \\
& + 5380900 x_4 x_3^2 \alpha_2^{10} \alpha_1 \alpha_3 + 10044425 x_4 x_3^2 \alpha_2^4 \alpha_1^6 \alpha_3^2 \\
& - 43036250 x_4 x_3^2 \alpha_2^6 \alpha_1^3 \alpha_3^3 - 3880000 x_4 x_3^2 \alpha_2^{12} - 21600 x_4 x_3^2 \alpha_2^2 \alpha_1^9 \alpha_3 \\
& - 8806750 x_4 x_3^2 \alpha_2^6 \alpha_1^5 \alpha_3 + 52247150 x_4 x_3^2 \alpha_2^6 \alpha_1^4 \alpha_3^2 \\
& - 33497225 x_4 x_3^2 \alpha_2^8 \alpha_1^3 \alpha_3 - 801000 x_4 x_3^2 \alpha_1^7 \alpha_2^4 \alpha_3 + 657900 x_4 x_3^2 \alpha_1^8 \alpha_3^2 \alpha_2^2 \\
& - 585700 x_4 x_3^2 \alpha_2^6 \alpha_3^5 \alpha_1 + 1259000 x_4 x_3^2 \alpha_2^4 \alpha_3^6 \alpha_1^2 - 79200 x_4 x_3^2 \alpha_2^4 \alpha_3^7 \alpha_1 \\
& - 878800 x_4 x_3^2 \alpha_1^3 \alpha_3^7 \alpha_2^2 + 673825 x_4 x_3^2 \alpha_2^8 \alpha_3^3 \alpha_1 + 57600 x_4 x_3^2 \alpha_1^2 \alpha_3^8 \alpha_2^2 \\
& + 14407600 x_4 x_3^2 \alpha_1^6 \alpha_3^4 \alpha_2^2 - 10466775 x_4 x_3^2 \alpha_2^4 \alpha_3^5 \alpha_1^3 \\
& - 39741825 x_4 x_3^2 \alpha_1^5 \alpha_3^3 \alpha_2^4 - 23400 \alpha_2^7 x_1^2 x_3 \alpha_3^6 - 1440 \alpha_2 x_4 x_3 x_2 \alpha_3^{10} \alpha_1 \\
& + 1440 \alpha_2^3 x_4 x_3 x_2 \alpha_3^9 + 2798275 \alpha_2^3 x_4^2 x_3 \alpha_1^6 \alpha_3^3 + 24981225 \alpha_2^7 x_4^2 x_3 \alpha_3^2 \alpha_1^3 \\
& - 23019300 \alpha_2^9 x_4^2 x_3 \alpha_1^2 \alpha_3 - 2784975 \alpha_2^3 x_4^2 x_3 \alpha_1^5 \alpha_3^4 - 14400 \alpha_2^3 x_4^2 x_3 \alpha_3^7 \alpha_1^2 \\
& + 86400 \alpha_2^5 x_4^2 x_3 \alpha_3^6 \alpha_1 + 118600 \alpha_2^2 x_4^2 x_3 \alpha_1^8 \alpha_3^3 - 14400 \alpha_2^2 x_4^2 x_3 \alpha_1^9 \alpha_3^2
\end{aligned}$$

$$\begin{aligned}
& -8070750 \alpha_2^5 x_4^2 x_3 \alpha_1^4 \alpha_3^3 - 5208075 \alpha_2^7 x_4^2 x_3 \alpha_3^3 \alpha_1^2 + 617150 \alpha_2^5 x_4^2 x_3 \alpha_1^6 \alpha_3 \\
& - 391300 \alpha_2^3 x_4^2 x_3 \alpha_3^6 \alpha_1^3 + 682400 \alpha_2^5 x_4^2 x_3 \alpha_1^3 \alpha_3^4 - 14707800 x_4 x_3^2 \alpha_1^5 \alpha_3^5 \alpha_2^2 \\
& + 310600 \alpha_2^2 x_4^2 x_3 \alpha_1^4 \alpha_3^7 - 535000 \alpha_2^5 x_4^2 x_3 \alpha_3^5 \alpha_1^2 + 7203000 \alpha_2^{11} x_4^2 x_3 \alpha_1 \\
& + 977200 \alpha_2^7 x_4^2 x_3 \alpha_3^4 \alpha_1 - 460825 \alpha_2^3 x_4^2 x_3 \alpha_1^7 \alpha_3^2 + 1191975 \alpha_2^7 x_4^2 x_3 \alpha_1^4 \alpha_3 \\
& + 3617350 \alpha_2^9 x_4^2 x_3 \alpha_3^2 \alpha_1 - 860800 \alpha_2^2 x_4^2 x_3 \alpha_1^7 \alpha_3^4 + 1690800 \alpha_2^2 x_4^2 x_3 \alpha_1^6 \alpha_3^5 \\
& - 3031300 \alpha_2^5 x_4^2 x_3 \alpha_1^5 \alpha_3^2 + 2713525 \alpha_2^3 x_4^2 x_3 \alpha_1^4 \alpha_3^5 - 1223200 \alpha_2^2 x_4^2 x_3 \alpha_1^5 \alpha_3^6 \\
& + 40500 \alpha_2^3 x_4^2 x_3 \alpha_1^8 \alpha_3 - 21600 \alpha_2^2 x_4^2 x_3 \alpha_1^3 \alpha_3^8 - 21260 \alpha_2^3 x_1 x_3^2 \alpha_3^8 \alpha_1 \\
& + 720 \alpha_2 x_1 x_3^2 \alpha_3^{10} \alpha_1 + 23560 \alpha_2 x_4 x_3 x_2 \alpha_1^2 \alpha_3^9 + 11980 \alpha_2 x_1 x_3^2 \alpha_1^2 \alpha_3^9 \\
& + 28600 x_2 x_3^2 \alpha_2^2 \alpha_3^9 \alpha_1 + 1440 x_4 x_3 x_1 \alpha_2^4 \alpha_3^8 - 224700 \alpha_2^9 x_2^2 x_3^4 \\
& - 1229600 \alpha_2^{11} x_2^2 x_3 \alpha_3^2 - 9000 \alpha_2^7 x_2^2 x_3 \alpha_3^6 - 52880 \alpha_2^3 x_4 x_3 x_2 \alpha_3^8 \alpha_1 \\
& + 29320 \alpha_2^5 x_4 x_3 x_2 \alpha_3^7 + 148600 \alpha_2^9 x_1^2 x_3 \alpha_3^4 + 2241200 \alpha_2^{11} x_1^2 x_3 \alpha_3^2 \\
& + 10800 \alpha_2^2 x_2^2 x_3 \alpha_1^9 \alpha_3^3 - 1812825 \alpha_2^7 x_2^2 x_3 \alpha_1^5 \alpha_3 - 2360000 \alpha_2^{13} x_2^2 x_3 \\
& - 7722125 \alpha_2^9 x_2^2 x_3 \alpha_1^3 \alpha_3 + 6651950 x_4 x_3^2 \alpha_2^6 \alpha_3^4 \alpha_1^2 + 17100 \alpha_2^3 x_2^2 x_3 \alpha_1^8 \alpha_3^2 \\
& + 8445375 \alpha_2^7 x_2^2 x_3 \alpha_1^4 \alpha_3^2 - 66600 \alpha_2^5 x_2^2 x_3 \alpha_1^7 \alpha_3 + 2435900 \alpha_2^{11} x_2^2 x_3 \alpha_1^2 \\
& + 41400 \alpha_2^5 x_2^2 x_3 \alpha_3^7 \alpha_1 + 1026300 \alpha_2^7 x_2^2 x_3 \alpha_3^5 \alpha_1 + 38700 \alpha_2^7 x_2^2 x_3 \alpha_1^6 \\
& - 1674900 \alpha_2^5 x_2^2 x_3 \alpha_3^6 \alpha_1^2 + 2635175 \alpha_2^3 x_1^2 x_3 \alpha_1^7 \alpha_3^3 \\
& + 36207675 \alpha_2^9 x_1^2 x_3 \alpha_3^2 \alpha_1^2 - 1966300 \alpha_2^{11} x_1^2 x_3 \alpha_1^2 + 6129525 \alpha_2^9 x_2^2 x_3 \alpha_3^3 \alpha_1 \\
& - 296400 \alpha_2^2 x_2^2 x_3 \alpha_1^4 \alpha_3^8 - 55800 \alpha_2^3 x_2^2 x_3 \alpha_1^2 \alpha_3^8 + 1169700 \alpha_2^3 x_2^2 x_3 \alpha_1^3 \alpha_3^7 \\
& - 3058175 \alpha_2^5 x_2^2 x_3 \alpha_1^5 \alpha_3^3 - 510775 \alpha_2^3 x_2^2 x_3 \alpha_1^6 \alpha_3^4 \\
& + 10922375 \alpha_2^5 x_2^2 x_3 \alpha_3^5 \alpha_1^3 + 876000 \alpha_2^2 x_2^2 x_3 \alpha_1^5 \alpha_3^7 - 4940025 \alpha_2^3 x_2^2 x_3 \alpha_1^4 \alpha_3^6 \\
& - 11758275 \alpha_2^7 x_2^2 x_3 \alpha_3^4 \alpha_1^2 - 355075 \alpha_2^3 x_2^2 x_3 \alpha_1^7 \alpha_3^3 \\
& - 28592375 \alpha_2^9 x_2^2 x_3 \alpha_3^2 \alpha_1^2 + 23400 \alpha_2^2 x_2^2 x_3 \alpha_1^3 \alpha_3^9 + 6690875 \alpha_2^3 x_2^2 x_3 \alpha_1^5 \alpha_3^5 \\
& + 1440 x_4 x_3 x_1 \alpha_1^2 \alpha_3^{10} - 2880 x_4 x_3 x_1 \alpha_2^2 \alpha_3^9 \alpha_1 - 19953925 \alpha_2^5 x_2^2 x_3 \alpha_1^4 \alpha_3^4 \\
& - 44400 \alpha_2^2 x_2^2 x_3 \alpha_1^8 \alpha_3^4 + 32113325 \alpha_2^7 x_2^2 x_3 \alpha_1^3 \alpha_3^3 + 684475 \alpha_2^9 x_2^2 x_3 \alpha_1^4 \\
& + 1527825 \alpha_2^5 x_2^2 x_3 \alpha_1^6 \alpha_3^2 - 6731200 x_1 x_2 x_3 \alpha_1^2 \alpha_2^{10} \alpha_3 \\
& - 349200 x_1 x_2 x_3 \alpha_1 \alpha_2^6 \alpha_3^6 + 5193600 x_1 x_2 x_3 \alpha_1^2 \alpha_2^6 \alpha_3^5 - 256800 x_1 x_2 x_3 \alpha_1^5 \alpha_3^8 \\
& + 17057300 x_1 x_2 x_3 \alpha_1^2 \alpha_2^8 \alpha_3^3 - 648 \alpha_2^3 x_1^2 x_3 \alpha_3^9 + 489000 x_1 x_2 x_3 \alpha_1^2 \alpha_2^4 \alpha_3^7 \\
& + 1270600 x_1 x_2 x_3 \alpha_1^5 \alpha_2^8 + 882000 x_1 x_2 x_3 \alpha_1 \alpha_2^{12} + 13081300 \alpha_2^{11} x_2^2 x_3 \alpha_1 \alpha_3
\end{aligned}$$

$$\begin{aligned}
& + 409800 \alpha_2 x_2^2 x_3 \alpha_1^7 \alpha_3^5 + 79200 x_1 x_2 x_3 \alpha_1^7 \alpha_2^6 + 31862700 x_1 x_2 x_3 \alpha_1^5 \alpha_2^6 \alpha_3^2 \\
& + 18863800 x_1 x_2 x_3 \alpha_1^5 \alpha_2^4 \alpha_3^4 - 963200 x_1 x_2 x_3 \alpha_1^5 \alpha_2^2 \alpha_3^6 - 43200 x_1 x_2 x_3 \alpha_1^{10} \alpha_3^3 \\
& - 15600 x_1 x_2 x_3 \alpha_1^6 \alpha_3^7 + 512400 x_1 x_2 x_3 \alpha_1^9 \alpha_3^4 + 9028800 x_1 x_2 x_3 \alpha_1^7 \alpha_2^2 \alpha_3^4 \\
& + 5154600 x_1 x_2 x_3 \alpha_1^7 \alpha_2^4 \alpha_3^2 - 979200 \alpha_2 x_2^2 x_3 \alpha_1^6 \alpha_3^6 \\
& - 2710600 x_1 x_2 x_3 \alpha_1^8 \alpha_2^2 \alpha_3^3 - 1217400 x_1 x_2 x_3 \alpha_1^8 \alpha_3^5 - 201600 x_1 x_2 x_3 \alpha_1^8 \alpha_2^4 \alpha_3^4 \\
& + 949800 x_1 x_2 x_3 \alpha_1^7 \alpha_3^6 - 14786100 x_1 x_2 x_3 \alpha_1^3 \alpha_2^6 \alpha_3^4 \\
& - 4050400 x_1 x_2 x_3 \alpha_1^3 \alpha_2^4 \alpha_3^6 + 18892400 x_1 x_2 x_3 \alpha_1^3 \alpha_2^8 \alpha_3^2 \\
& - 311200 x_1 x_2 x_3 \alpha_1^3 \alpha_2^2 \alpha_3^8 + 6205900 x_1 x_2 x_3 \alpha_1^4 \alpha_2^4 \alpha_3^5 \\
& + 1600200 x_1 x_2 x_3 \alpha_1^4 \alpha_2^2 \alpha_3^7 - 19962300 x_1 x_2 x_3 \alpha_1^4 \alpha_2^8 \alpha_3^3 \\
& - 9670300 x_1 x_2 x_3 \alpha_1 \alpha_2^{10} \alpha_3^2 - 26038200 x_1 x_2 x_3 \alpha_1^4 \alpha_2^6 \alpha_3^3 \\
& - 3352800 x_1 x_2 x_3 \alpha_1 \alpha_2^8 \alpha_3^4 + 76200 x_1 x_2 x_3 \alpha_1^4 \alpha_3^9 - 432300 \alpha_2^7 x_1^2 x_3 \alpha_3^5 \alpha_1 \\
& + 598500 \alpha_2^5 x_1^2 x_3 \alpha_1^7 \alpha_3 + 406200 \alpha_2^5 x_1^2 x_3 \alpha_3^6 \alpha_1^2 + 63000 \alpha_2^5 x_1^2 x_3 \alpha_3^7 \alpha_1 \\
& - 12600 \alpha_2^2 x_1^4 x_3 \alpha_1^8 \alpha_3^8 - 7973425 \alpha_2^9 x_1^2 x_3 \alpha_3^3 \alpha_1 + 14300 x_1^2 x_2 \alpha_1^3 \alpha_3^{10} \\
& - 109900 \alpha_2^3 x_1^2 x_3 \alpha_1^3 \alpha_3^7 - 3945125 \alpha_2^3 x_1^2 x_3 \alpha_1^6 \alpha_3^4 - 55800 \alpha_2^3 x_1^2 x_3 \alpha_1^2 \alpha_3^8 \\
& + 3900 \alpha_2^2 x_1^2 x_3 \alpha_1^5 \alpha_3^7 + 9938875 \alpha_2^5 x_1^2 x_3 \alpha_1^5 \alpha_3^3 - 6050975 \alpha_2^5 x_1^2 x_3 \alpha_3^5 \alpha_1^3 \\
& + 5995450 \alpha_2^5 x_1 x_4 x_2 \alpha_1^5 \alpha_3^3 + 10505175 \alpha_2^7 x_1^2 x_3 \alpha_3^4 \alpha_1^2 \\
& + 1274125 \alpha_2^3 x_1^2 x_3 \alpha_1^4 \alpha_3^6 + 16200 \alpha_2 x_1^2 x_3 \alpha_1^3 \alpha_3^9 - 744375 \alpha_2^3 x_1^2 x_3 \alpha_1^5 \alpha_3^5 \\
& + 866200 x_1 x_2 x_3 \alpha_2^{10} \alpha_3^3 + 2172000 x_1 x_2 x_3 \alpha_2^{12} \alpha_3 + 95200 x_1 x_2 x_3 \alpha_2^8 \alpha_3^5 \\
& + 9000 x_1 x_2 x_3 \alpha_1^2 \alpha_3^9 \alpha_2^2 - 1800 x_1 x_2 x_3 \alpha_1^8 \alpha_3^4 \alpha_2^4 - 6818600 x_1 x_2 x_3 \alpha_1^6 \alpha_2^2 \alpha_3^5 \\
& - 24597100 x_1 x_2 x_3 \alpha_1^6 \alpha_2^4 \alpha_3^3 - 1800 x_1 x_2 x_3 \alpha_3^7 \alpha_2^6 - 5400 x_1 x_2 x_3 \alpha_1^3 \alpha_3^{10} \\
& + 4885300 x_1 x_2 x_3 \alpha_1^3 \alpha_2^{10} - 4227000 x_1 x_2 x_3 \alpha_1^6 \alpha_2^6 \alpha_3 - 720 x_1^2 x_2 \alpha_3^9 \alpha_2^4 \\
& + 2700 \alpha_2^4 x_4^3 \alpha_1^8 + 91200 \alpha_2^{10} x_4^3 \alpha_3^2 + 15300 \alpha_2^8 x_4^3 \alpha_3^4 - 32190 \alpha_2 x_3^3 \alpha_1^6 \alpha_3^4 \\
& - 1544300 \alpha_2^{10} x_4^3 \alpha_1^2 + 648 \alpha_2^2 x_1^2 x_3 \alpha_3^{10} \alpha_1 - 134075 \alpha_2^8 x_4^3 \alpha_1^4 \\
& - 22200100 \alpha_2^{11} x_1^2 x_3 \alpha_1 \alpha_3 + 26175 \alpha_2^6 x_4^3 \alpha_1^6 - 267600 \alpha_2 x_1^2 x_3 \alpha_1^6 \alpha_3^6 \\
& - 489000 \alpha_2 x_1^2 x_3 \alpha_1^8 \alpha_3^4 - 28374625 \alpha_2^7 x_1^2 x_3 \alpha_1^3 \alpha_3^3 \\
& + 10059025 \alpha_2^5 x_1^2 x_3 \alpha_1^4 \alpha_3^4 + 4380525 \alpha_2^7 x_1^2 x_3 \alpha_1^5 \alpha_3^5 \\
& - 5165025 \alpha_2^5 x_1^2 x_3 \alpha_1^6 \alpha_3^2 - 10800 \alpha_2 x_1^2 x_3 \alpha_1^{10} \alpha_3^2 - 1361675 \alpha_2^9 x_1^2 x_3 \alpha_1^4 \\
& + 144300 \alpha_2^2 x_1^2 x_3 \alpha_1^9 \alpha_3^3 + 5320000 \alpha_2^{13} x_1^2 x_3 + 7828025 \alpha_2^9 x_1^2 x_3 \alpha_1^3 \alpha_3^3
\end{aligned}$$

$$\begin{aligned}
& + 21600 \alpha_2^3 x_1 x_3 \alpha_1^9 \alpha_3 - 12471075 \alpha_2^7 x_1^2 x_3 \alpha_1^4 \alpha_3^2 - 6770250 \alpha_2^5 x_1 x_4 x_2 \alpha_3^5 \alpha_1^3 \\
& + 615600 \alpha_2^2 x_1^2 x_3 \alpha_1^7 \alpha_3^5 - 515700 \alpha_2^3 x_1^2 x_3 \alpha_1^8 \alpha_3^2 - 357800 \alpha_2 x_1 x_4 x_2 \alpha_1^5 \alpha_3^7 \\
& + 307750 \alpha_2^{10} x_2^2 x_4 \alpha_3^2 \alpha_1 + 87125 \alpha_2^8 x_2^2 x_4 \alpha_3^4 \alpha_1 + 7262050 \alpha_2^8 x_2^2 x_4 \alpha_1^4 \alpha_3 \\
& + 648550 \alpha_2^3 x_1 x_4 x_2 \alpha_1^5 \alpha_3^5 + 1314150 \alpha_2^2 x_2^2 x_4 \alpha_1^6 \alpha_3^5 \\
& + 1065050 \alpha_2^4 x_2^2 x_4 \alpha_1^4 \alpha_3^5 - 1384300 \alpha_2^2 x_2^2 x_4 \alpha_1^7 \alpha_3^4 \\
& - 9933450 \alpha_2^6 x_2^2 x_4 \alpha_1^5 \alpha_3^2 + 63000 \alpha_2^4 x_2^2 x_4 \alpha_1^8 \alpha_3 - 306500 \alpha_2^2 x_2^2 x_4 \alpha_1^5 \alpha_3^6 \\
& - 1991650 \alpha_2^{10} x_2^2 x_4 \alpha_1^3 - 2700 \alpha_2^2 x_2^2 x_4 \alpha_1^3 \alpha_3^8 - 980400 \alpha_2 x_3^3 \alpha_1^7 \alpha_3^4 \\
& + 3411450 \alpha_2^3 x_1 x_4 x_2 \alpha_1^7 \alpha_3^3 + 11319225 \alpha_2^3 x_3^3 \alpha_1^4 \alpha_3^5 - 10306600 \alpha_2^5 x_3^3 \alpha_1^5 \alpha_3^2 \\
& + 2160 \alpha_2^3 x_1 x_4 \alpha_3^8 \alpha_1 + 21600 \alpha_2^3 x_3^3 \alpha_1^8 \alpha_3 - 1840800 \alpha_2 x_3^3 \alpha_1^5 \alpha_3^6 \\
& + 165600 x_1 x_2 x_3 \alpha_1^9 \alpha_2^2 \alpha_3^2 + 10233650 \alpha_2^9 x_1 x_4 x_2 \alpha_3^2 \alpha_1^2 - 720 \alpha_2^5 x_1 x_4 \alpha_3^7 \\
& + 15818775 x_4 x_3^2 \alpha_2^8 \alpha_3^2 \alpha_1^2 + 8229050 \alpha_2^7 x_1 x_4 x_2 \alpha_3^4 \alpha_1^2 - 1440 \alpha_2 x_1 x_4 \alpha_1^2 \alpha_3^9 \\
& + 720 \alpha_2^2 x_2^2 x_4 \alpha_3^9 \alpha_1 - 720 \alpha_2^4 x_2^2 x_4 \alpha_3^8 - 4991800 x_4 x_3^2 \alpha_1^7 \alpha_3^3 \alpha_2^2 \\
& - 108000 \alpha_2 x_3^3 \alpha_1^3 \alpha_3^8 + 24280 \alpha_2^4 x_2^2 x_4 \alpha_3^7 \alpha_1 - 10340 \alpha_2^2 x_2^2 x_4 \alpha_1^2 \alpha_3^8 \\
& + 2597950 \alpha_2^3 x_1 x_4 x_2 \alpha_1^4 \alpha_3^6 + 120000 \alpha_2^{12} x_4^3 - 16460 x_1^2 x_2 \alpha_3^7 \alpha_2^6 \\
& - 50241525 \alpha_2^7 x_3^3 \alpha_3^2 \alpha_1^3 + 5248575 \alpha_2^3 x_3^3 \alpha_1^6 \alpha_3^3 + 10800 x_1^2 x_4 \alpha_3^2 \alpha_1^{11} \\
& - 13961325 \alpha_2^3 x_3^3 \alpha_1^5 \alpha_3^4 + 32967300 \alpha_2^9 x_3^3 \alpha_1^2 \alpha_3 - 495900 \alpha_2^5 x_3^3 \alpha_3^6 \alpha_1 \\
& - 630600 x_1^2 x_4 \alpha_1^7 \alpha_3^6 + 413100 \alpha_2^3 x_3^3 \alpha_3^7 \alpha_1^2 - 5384600 \alpha_2^{11} x_1 x_4 x_2 \alpha_1 \alpha_3 \\
& - 973600 \alpha_2 x_1 x_4 x_2 \alpha_1^8 \alpha_3^4 + 1120000 \alpha_2^{13} x_1 x_4 x_2 - 481600 \alpha_2 x_1 x_4 x_2 \alpha_1^6 \alpha_3^6 \\
& - 9108150 \alpha_2^7 x_1 x_4 x_2 \alpha_1^3 \alpha_3^3 + 2972150 \alpha_2^5 x_1 x_4 x_2 \alpha_1^4 \alpha_3^4 \\
& - 4264950 \alpha_2^5 x_1 x_4 x_2 \alpha_1^6 \alpha_3^2 - 362850 \alpha_2^9 x_1 x_4 x_2 \alpha_1^4 + 2189950 \alpha_2^7 x_1 x_4 x_2 \alpha_1^5 \alpha_3 \\
& - 14400 \alpha_2 x_1 x_4 x_2 \alpha_1^{10} \alpha_3^2 + 161800 \alpha_2 x_1 x_4 x_2 \alpha_1^9 \alpha_3^3 - 10800 \alpha_2 x_3^3 \alpha_1^9 \alpha_3^2 \\
& + 28800 \alpha_2^3 x_1 x_4 x_2 \alpha_1^9 \alpha_3 - 4012650 \alpha_2^9 x_1 x_4 x_2 \alpha_1^3 \alpha_3 + 298950 \alpha_2^7 x_1 x_4 x_2 \alpha_1^4 \alpha_3^2 \\
& - 478200 \alpha_2^3 x_1 x_4 x_2 \alpha_1^8 \alpha_3^2 + 1492200 \alpha_2 x_1 x_4 x_2 \alpha_1^7 \alpha_3^5 \\
& + 471000 \alpha_2^5 x_1 x_4 x_2 \alpha_1^7 \alpha_3 + 183900 \alpha_2 x_3^3 \alpha_1^8 \alpha_3^3 - 1065000 \alpha_2^7 x_1 x_4 x_2 \alpha_3^5 \alpha_1 \\
& - 14400 \alpha_2^5 x_1 x_4 x_2 \alpha_1^8 - 63000 \alpha_2^5 x_1 x_4 x_2 \alpha_3^7 \alpha_1 - 84300 x_1^2 x_4 \alpha_1^5 \alpha_3^8 \\
& + 189600 \alpha_2 x_1 x_4 x_2 \alpha_1^4 \alpha_3^8 + 1460400 \alpha_2^5 x_1 x_4 x_2 \alpha_3^6 \alpha_1^2 \\
& - 4750150 \alpha_2^9 x_1 x_4 x_2 \alpha_3^3 \alpha_1 - 154600 \alpha_2^7 x_1 x_4 x_2 \alpha_1^6 - 871400 \alpha_2^3 x_1 x_4 x_2 \alpha_1^3 \alpha_3^7 \\
& - 5508150 \alpha_2^3 x_1 x_4 x_2 \alpha_1^6 \alpha_3^4 + 55800 \alpha_2^3 x_1 x_4 x_2 \alpha_1^2 \alpha_3^8 + 23400 \alpha_2^7 x_1 x_4 x_2 \alpha_3^6
\end{aligned}$$



$$\begin{aligned}
& + 1734200 \alpha_2^{11} x_1 x_4 x_2 \alpha_1^2 + 286400 \alpha_2^9 x_1 x_4 x_2 \alpha_3^4 + 1051200 \alpha_2^{11} x_1 x_4 x_2 \alpha_3^2 \\
& - 720 \alpha_2^6 x_2^3 \alpha_3^7 + 29955525 \alpha_2^7 x_3^3 \alpha_3^3 \alpha_1^2 + 37814350 \alpha_2^5 x_3^3 \alpha_1^4 \alpha_3^3 \\
& - 11199150 \alpha_2^8 x_2^2 x_4^2 \alpha_3^2 \alpha_1^3 - 6213650 \alpha_2^4 x_2^2 x_4^2 \alpha_1^5 \alpha_3^4 \\
& + 6047350 \alpha_2^4 x_2^2 x_4^2 \alpha_1^6 \alpha_3^3 + 5353400 \alpha_2^{10} x_2^2 x_4^2 \alpha_1^2 \alpha_3^2 - 16200 \alpha_2 x_1 x_4 x_2 \alpha_1^3 \alpha_3^9 \\
& + 9900 \alpha_2^6 x_2^2 x_4^2 \alpha_3^6 \alpha_1 - 900 \alpha_2^4 x_2^2 x_4^2 \alpha_3^7 \alpha_1^2 + 366875 \alpha_2^2 x_2^2 x_4^2 \alpha_1^8 \alpha_3^3 \\
& - 31500 \alpha_2^2 x_2^2 x_4^2 \alpha_1^9 \alpha_3^2 + 795600 \alpha_2^5 x_3^3 \alpha_1^6 \alpha_3^6 - 26568500 \alpha_2^5 x_3^3 \alpha_1^3 \alpha_3^4 \\
& - 3810675 \alpha_2^3 x_3^3 \alpha_3^6 \alpha_1^3 + 6988250 \alpha_2^5 x_3^3 \alpha_3^5 \alpha_1^2 + 759900 \alpha_2^3 x_3^3 \alpha_1^4 \alpha_3^7 \\
& - 670500 \alpha_2^3 x_3^3 \alpha_1^7 \alpha_3^2 - 5552575 \alpha_2^7 x_3^3 \alpha_3^4 \alpha_1 - 16215450 \alpha_2^9 x_3^3 \alpha_3^2 \alpha_1 \\
& + 8820575 \alpha_2^7 x_3^3 \alpha_1^4 \alpha_3^4 + 1996200 \alpha_2 x_3^3 \alpha_1^6 \alpha_3^5 + 11776250 \alpha_2^6 x_2^2 x_4^2 \alpha_1^4 \alpha_3^3 \\
& + 274550 \alpha_2^8 x_2^2 x_4^2 \alpha_3^3 \alpha_1^2 - 1194850 \alpha_2^6 x_2^2 x_4^2 \alpha_1^3 \alpha_3^4 + 1302225 \alpha_2^6 x_2^2 x_4^2 \alpha_1^6 \alpha_3^6 \\
& + 11625 \alpha_2^6 x_2^2 x_4^2 \alpha_3^5 \alpha_1^2 - 95425 \alpha_2^4 x_2^2 x_4^2 \alpha_3^6 \alpha_1^3 - 1201425 \alpha_2^4 x_2^2 x_4^2 \alpha_1^7 \alpha_3^2 \\
& + 43975 \alpha_2^2 x_2^2 x_4^2 \alpha_1^4 \alpha_3^7 + 176700 x_4 x_3^2 \alpha_1^4 \alpha_3^8 - 19802750 x_1^2 x_4^3 \alpha_1^6 \alpha_2^4 \\
& - 905100 x_4 x_3^2 \alpha_1^5 \alpha_3^7 - 73800 x_1^2 x_4^3 \alpha_1^3 \alpha_2^2 \alpha_3^8 + 319200 x_1^2 x_4^3 \alpha_1^8 \alpha_3^5 \\
& + 881500 x_1^2 x_4^3 \alpha_1^4 \alpha_2^2 \alpha_3^7 - 37642800 x_1^2 x_4^3 \alpha_1^3 \alpha_2^8 \alpha_3^2 \\
& + 11795650 x_1^2 x_4^3 \alpha_1^4 \alpha_2^4 \alpha_3^5 + 32400 x_4 x_3^2 \alpha_2^6 \alpha_3^6 + 33347600 x_1^2 x_4^4 \alpha_1^6 \alpha_2^3 \alpha_3^3 \\
& + 3944650 x_1^2 x_4^4 \alpha_1^8 \alpha_2^4 \alpha_3^8 - 6842350 x_1^2 x_4^4 \alpha_1^10 \alpha_2^2 \alpha_3^2 - 185400 x_1^2 x_4^4 \alpha_1^6 \alpha_2^6 \alpha_3^6 \\
& - 2153800 x_1^2 x_4^4 \alpha_1^8 \alpha_2^4 \alpha_3^4 + 3530400 x_1^2 x_4^4 \alpha_1^2 \alpha_2^6 \alpha_3^5 \\
& + 22497200 x_1^2 x_4^4 \alpha_1^2 \alpha_2^{10} \alpha_3^2 + 192600 x_1^2 x_4^4 \alpha_1^2 \alpha_2^4 \alpha_3^7 \\
& + 16938850 x_1^2 x_4^4 \alpha_1^2 \alpha_2^8 \alpha_3^3 - 1430800 x_4 x_3^2 \alpha_2^{10} \alpha_3^2 + 28800 x_4 x_3^2 \alpha_2^8 \alpha_3^4 \\
& - 10800 x_4 x_3^2 \alpha_1^3 \alpha_3^9 - 5495000 x_1^2 x_4^4 \alpha_1^12 \alpha_2^2 - 1907400 x_4 x_3^2 \alpha_1^7 \alpha_3^5 \\
& + 10800 x_4 x_3^2 \alpha_2^4 \alpha_1^8 - 21600 x_1^2 x_4^4 \alpha_1^{10} \alpha_2^2 \alpha_3^2 - 16911200 x_1^2 x_4^4 \alpha_1^5 \alpha_2^4 \alpha_3^4 \\
& - 6021450 x_1^2 x_4^4 \alpha_1^5 \alpha_2^6 \alpha_3^2 - 3426700 x_1^2 x_4^4 \alpha_1^5 \alpha_2^2 \alpha_3^6 \\
& + 1748400 x_1^2 x_4^4 \alpha_1^7 \alpha_2^4 \alpha_3^2 - 1841800 x_1^2 x_4^4 \alpha_1^7 \alpha_2^2 \alpha_3^4 - 754700 x_1^2 x_4^4 \alpha_1^8 \alpha_2^2 \alpha_3^3 \\
& + 402300 x_1^2 x_4^4 \alpha_1^9 \alpha_2^2 \alpha_3^2 + 5400 x_1^2 x_4^4 \alpha_1^4 \alpha_3^9 + 8491700 x_4 x_3^2 \alpha_2^{10} \alpha_1^2 \\
& - 2670500 x_1^2 x_4^4 \alpha_1^3 \alpha_2^4 \alpha_3^6 - 468900 x_1^2 x_4^4 \alpha_1^8 \alpha_2^4 \alpha_3^4 - 105960 \alpha_2^5 x_1 x_2 \alpha_3^7 \alpha_1 \\
& + 98040 \alpha_2^3 x_1 x_2 \alpha_1^2 \alpha_3^8 + 4834800 x_1^2 x_4^4 \alpha_1^6 \alpha_2^2 \alpha_3^5 + 4623150 x_1^2 x_4^4 \alpha_1^6 \alpha_2^4 \alpha_3^3 \\
& - 1649100 x_1^2 x_4^4 \alpha_1^6 \alpha_2^6 \alpha_3^6 + 319800 x_4 x_3^2 \alpha_1^6 \alpha_2^6 + 1440 \alpha_2^3 x_1^3 \alpha_3^9 \alpha_1 \\
& - 720 \alpha_2 x_1^3 \alpha_1^2 \alpha_3^{10} - 720 \alpha_2^5 x_1^3 \alpha_3^8 + 3660 \alpha_2^5 x_1^3 \alpha_3^7 \alpha_1 + 1560 \alpha_2^3 x_1^3 \alpha_1^2 \alpha_3^8
\end{aligned}$$

$$\begin{aligned}
& + 47220 x_1^2 x_2 \alpha_1 \alpha_3^8 \alpha_2^4 + 1440 x_1^2 x_2 \alpha_1 \alpha_3^{10} \alpha_2^2 - 45060 x_1^2 x_2 \alpha_1^2 \alpha_3^9 \alpha_2^2 \\
& + 905100 x_4 x_3^2 \alpha_1^8 \alpha_3^4 + 1907400 x_4 x_3^2 \alpha_1^6 \alpha_3^6 + 2849025 x_4 x_3^2 \alpha_2^8 \alpha_1^4 \\
& + 10800 x_4 x_3^2 \alpha_1^{10} \alpha_3^2 + 1440 \alpha_2 x_1 x_2^2 \alpha_1^2 \alpha_3^{10} - 2880 \alpha_2^3 x_1 x_2^2 \alpha_3^9 \alpha_1 \\
& + 1440 \alpha_2^5 x_1 x_2^2 \alpha_3^8 - 176700 x_4 x_3^2 \alpha_1^9 \alpha_3^3 - 2260 \alpha_2 x_1^3 \alpha_1^3 \alpha_3^9 - 2960 \alpha_2^7 x_1^3 \alpha_3^6 \\
& - 30040 \alpha_2 x_1 x_2^2 \alpha_1^3 \alpha_3^9 + 30400 \alpha_2^{11} x_3^3 - 15380 x_2 x_3^2 \alpha_2^4 \alpha_3^8 \\
& + 84594 \alpha_2^3 x_3^3 \alpha_1^5 \alpha_3^3 + 839434 \alpha_2^3 x_3^3 \alpha_1^3 \alpha_3^5 - 189860 \alpha_2 x_3^3 \alpha_1^4 \alpha_3^6 \\
& + 720 x_2 x_3^2 \alpha_1 \alpha_3^{11} - 720 x_2 x_3^2 \alpha_2^2 \alpha_3^{10} - 13220 x_2 x_3^2 \alpha_1^2 \alpha_3^{10} \\
& + 295244 \alpha_2^5 x_3^3 \alpha_3^5 \alpha_1 + 84708 \alpha_2 x_3^3 \alpha_1^3 \alpha_3^7 - 279106 \alpha_2^3 x_3^3 \alpha_1^2 \alpha_3^6 \\
& - 720 \alpha_2^3 x_1 x_3^2 \alpha_3^9 - 2239760 x_3^2 x_2 \alpha_2^{10} \alpha_1 \alpha_3 + 3497390 x_3^2 x_2 \alpha_2^6 \alpha_1^3 \alpha_3^3 \\
& - 3693015 x_3^2 x_2 \alpha_2^4 \alpha_1^4 \alpha_3^4 + 42720 x_3^2 x_2 \alpha_2^8 \alpha_1^4 + 21385 x_3^2 x_2 \alpha_2^8 \alpha_1^3 \alpha_3^3 \\
& - 101780 x_3^2 x_2 \alpha_2^6 \alpha_1^5 \alpha_3^5 + 1057000 x_3^2 x_2 \alpha_2^{12} + 1437150 x_3^2 x_2 \alpha_2^6 \alpha_3^5 \alpha_1 \\
& - 13680 x_3^2 x_2 \alpha_1^7 \alpha_2^4 \alpha_3^4 + 7920 x_3^2 x_2 \alpha_1^8 \alpha_3^2 \alpha_2^2 - 1990105 x_3^2 x_2 \alpha_2^4 \alpha_3^6 \alpha_1^2 \\
& - 677120 x_3^2 x_2 \alpha_2^6 \alpha_1^4 \alpha_3^2 + 85560 x_3^2 x_2 \alpha_2^4 \alpha_1^6 \alpha_3^2 - 230060 x_3^2 x_2 \alpha_1^6 \alpha_3^6 \\
& + 2420 x_3^2 x_2 \alpha_1^8 \alpha_3^4 + 467555 x_3^2 x_2 \alpha_2^8 \alpha_3^3 \alpha_1 - 239140 x_3^2 x_2 \alpha_1^4 \alpha_3^8 \\
& + 134170 x_3^2 x_2 \alpha_2^{10} \alpha_1^2 + 58240 x_3^2 x_2 \alpha_1^7 \alpha_3^5 + 6480 x_3^2 x_2 \alpha_1^6 \alpha_2^6 \\
& - 720 x_3^2 x_2 \alpha_1^9 \alpha_3^3 - 28920 x_3^2 x_2 \alpha_1^7 \alpha_3^3 \alpha_2^2 + 75365 x_3^2 x_2 \alpha_2^8 \alpha_3^2 \alpha_1^2 \\
& - 3138440 x_3^2 x_2 \alpha_2^6 \alpha_3^4 \alpha_1^2 - 1990120 x_3^2 x_2 \alpha_1^4 \alpha_3^6 \alpha_2^2 + 338400 x_3^2 x_2 \alpha_1^5 \alpha_3^7 \\
& - 157194 x_3^2 x_4 \alpha_2^2 \alpha_1^5 \alpha_3^4 + 33456 x_3^2 x_4 \alpha_2^2 \alpha_1^6 \alpha_3^3 - 756960 x_3^2 x_4 \alpha_2^6 \alpha_3^2 \alpha_1^3 \\
& + 353172 x_3^2 x_4 \alpha_2^8 \alpha_1^2 \alpha_3^2 + 1533080 x_3^2 x_2 \alpha_1^5 \alpha_3^5 \alpha_2^2 + 3996535 x_3^2 x_2 \alpha_2^4 \alpha_3^5 \alpha_1^3 \\
& + 851785 x_3^2 x_2 \alpha_1^5 \alpha_3^3 \alpha_2^4 - 388460 x_3^2 x_2 \alpha_1^6 \alpha_3^4 \alpha_2^2 - 312620 x_3^2 x_2 \alpha_1^2 \alpha_3^8 \alpha_2^2 \\
& + 1151240 x_3^2 x_2 \alpha_1^3 \alpha_3^7 \alpha_2^2 - 12864 x_3^2 x_4 \alpha_3^7 \alpha_2^2 \alpha_1^2 + 11406 x_3^2 x_4 \alpha_3^8 \alpha_2^2 \alpha_1 \\
& + 63288 x_3^2 x_4 \alpha_3^6 \alpha_2^4 \alpha_1 + 4032 x_3^2 x_4 \alpha_1^6 \alpha_2^4 \alpha_3 + 591142 x_3^2 x_4 \alpha_2^4 \alpha_1^4 \alpha_3^3 \\
& + 2273496 x_3^2 x_4 \alpha_2^6 \alpha_3^3 \alpha_1^2 - 1317656 x_3^2 x_4 \alpha_2^4 \alpha_1^3 \alpha_3^4 - 36640 x_3^2 x_4 \alpha_2^{10} \alpha_1 \\
& - 17886 x_3^2 x_4 \alpha_2^4 \alpha_3^7 - 66624 x_3^2 x_4 \alpha_2^6 \alpha_3^5 - 1872 x_3^2 x_4 \alpha_1^5 \alpha_2^6 \\
& + 83360 x_3^2 x_2 \alpha_1^3 \alpha_3^9 - 359145 x_3^2 x_2 \alpha_2^8 \alpha_3^4 + 326070 x_3^2 x_2 \alpha_2^{10} \alpha_3^2 \\
& - 138160 x_3^2 x_2 \alpha_2^6 \alpha_3^6 - 15496 x_3^2 x_4 \alpha_2^8 \alpha_1^3 - 2160 x_3^2 x_4 \alpha_1^7 \alpha_2^2 \alpha_3^2 \\
& + 547040 x_3^2 x_4 \alpha_2^4 \alpha_3^5 \alpha_1^2 - 170052 x_3^2 x_4 \alpha_3^6 \alpha_2^2 \alpha_1^3 + 68264 x_3^2 x_4 \alpha_2^6 \alpha_1^4 \alpha_3^4 \\
& - 1791888 x_3^2 x_4 \alpha_2^8 \alpha_3^2 \alpha_1 - 548032 x_3^2 x_4 \alpha_2^6 \alpha_3^4 \alpha_1 - 87304 x_3^2 x_4 \alpha_2^4 \alpha_1^5 \alpha_3^2
\end{aligned}$$

$$\begin{aligned}
& +298488 x_3^2 x_4 \alpha_1^4 \alpha_3^5 \alpha_2^2 + 521360 x_3^2 x_4 \alpha_2^{10} \alpha_3 - 1080 x_3^2 x_4 \alpha_2^2 \alpha_3^9 \\
& + 149444 x_3^2 x_4 \alpha_2^8 \alpha_3^3 + 136742 \alpha_2 x_3^3 \alpha_1^5 \alpha_3^5 - 216 \alpha_2^5 x_3^3 \alpha_1^5 \alpha_3 \\
& - 2952 \alpha_2^3 x_3^3 \alpha_1^6 \alpha_3^2 - 3586 \alpha_2 x_3^3 \alpha_3^9 \alpha_1 + 1117242 \alpha_2^7 x_3^3 \alpha_1^3 \alpha_3^3 \\
& - 1435360 \alpha_2^5 x_3^3 \alpha_1^2 \alpha_3^4 - 1442 \alpha_2^7 x_3^3 \alpha_1^3 \alpha_3 - 60026 \alpha_2^5 x_3^3 \alpha_1^4 \alpha_3^2 \\
& + 2136 \alpha_2^3 x_3^7 \alpha_1^3 \alpha_3^3 - 14628 \alpha_2^3 x_3^3 \alpha_3^7 \alpha_1 + 1690 \alpha_2^3 x_3^2 \alpha_1^8 \alpha_3 \\
& - 291186 \alpha_2^7 x_3^3 \alpha_1^2 \alpha_3^2 + 668324 \alpha_2^5 x_3^3 \alpha_1^3 \alpha_3^3 - 517888 \alpha_2^3 x_3^3 \alpha_1^4 \alpha_3^4 \\
& - 24232 \alpha_2^9 x_3^3 \alpha_1 \alpha_3 - 93646 \alpha_2^7 x_3^3 \alpha_3^4 + 9424 \alpha_2^9 x_3^3 \alpha_1^2 + 1032 \alpha_2^7 x_3^3 \alpha_1^4 \\
& + 18338 \alpha_2^5 x_3^3 \alpha_3^6 + 5746 \alpha_2^3 x_3^3 \alpha_3^8 - 113600 \alpha_2^{11} x_3 x_4^2 - 129600 \alpha_2^{12} x_4 x_2^2 \\
& - 326056 \alpha_2^9 x_3^3 \alpha_3^2 - 329025 \alpha_2^9 x_1 x_3^2 \alpha_3^3 + 114655 \alpha_2^9 x_1 x_3^2 \alpha_1^3 \\
& - 554900 \alpha_2^{11} x_1 x_3^2 \alpha_3 + 689390 \alpha_2^3 x_1 x_3^2 \alpha_1^4 \alpha_3^5 + 2444105 \alpha_2^9 x_1 x_3^2 \alpha_3^2 \alpha_1 \\
& + 64940 \alpha_2^3 x_1 x_3^2 \alpha_3^6 \alpha_1^3 + 1046805 \alpha_2^5 x_1 x_3^2 \alpha_1^3 \alpha_3^4 + 178560 \alpha_2^5 x_1 x_3^2 \alpha_1^6 \alpha_3 \\
& - 309495 \alpha_2^5 x_1 x_3^2 \alpha_1^4 \alpha_3^3 - 67652 \alpha_2^5 x_3 x_4^2 \alpha_3^5 \alpha_1 + 113446 \alpha_2^3 x_3 x_4^2 \alpha_1^3 \alpha_3^5 \\
& + 337050 \alpha_2^7 x_3 x_4^2 \alpha_1 \alpha_3^3 - 359160 \alpha_2^5 x_3 x_4^2 \alpha_1^2 \alpha_3^4 + 169534 \alpha_2^7 x_3 x_4^2 \alpha_1^3 \alpha_3 \\
& - 125318 \alpha_2^5 x_3 x_4^2 \alpha_1^4 \alpha_3^2 + 4717670 \alpha_2^7 x_1 x_3^2 \alpha_3^2 \alpha_1^3 - 69736 \alpha_2^9 x_3 x_4^2 \alpha_3^2 \\
& - 1850 \alpha_2^5 x_1 x_3^2 \alpha_3^6 \alpha_1 - 5312215 \alpha_2^9 x_1 x_3^2 \alpha_1^2 \alpha_3 - 1524880 \alpha_2^3 x_1 x_3^2 \alpha_1^5 \alpha_3^4 \\
& + 1074625 \alpha_2^3 x_1 x_3^2 \alpha_1^6 \alpha_3^3 + 68880 \alpha_2 x_1 x_3^2 \alpha_1^8 \alpha_3^3 - 4320 \alpha_2 x_1 x_3^2 \alpha_1^9 \alpha_3^2 \\
& + 1863100 \alpha_2^{11} x_1 x_3^2 \alpha_1 - 3235840 \alpha_2^7 x_1 x_3^2 \alpha_3^3 \alpha_1^2 - 4155 \alpha_2^7 x_1 x_3^2 \alpha_3^5 \\
& - 4320 \alpha_2^5 x_1 x_3^2 \alpha_1^7 - 51240 \alpha_2^7 x_1 x_3^2 \alpha_1^5 + 9280 \alpha_2^5 x_1 x_3^2 \alpha_3^7 \\
& + 69850 \alpha_2^7 x_3 x_4^2 \alpha_3^4 - 66416 \alpha_2^9 x_3 x_4^2 \alpha_1^2 + 20665 \alpha_2^3 x_1 x_3^2 \alpha_3^7 \alpha_1^2 \\
& + 939430 \alpha_2^7 x_1 x_3^2 \alpha_3^4 \alpha_1 - 196200 \alpha_2^3 x_1 x_3^2 \alpha_1^7 \alpha_3^2 + 89320 \alpha_2 x_1 x_3^2 \alpha_1^4 \alpha_3^7 \\
& - 764665 \alpha_2^5 x_1 x_3^2 \alpha_3^5 \alpha_1^2 - 328180 \alpha_2 x_1 x_3^2 \alpha_1^7 \alpha_3^4 + 565820 \alpha_2 x_1 x_3^2 \alpha_1^6 \alpha_3^5 \\
& + 225855 \alpha_2^7 x_1 x_3^2 \alpha_1^4 \alpha_3 - 389560 \alpha_2 x_1 x_3^2 \alpha_1^5 \alpha_3^6 + 8640 \alpha_2^3 x_1 x_3^2 \alpha_1^8 \alpha_3 \\
& - 1086955 \alpha_2^5 x_1 x_3^2 \alpha_1^5 \alpha_3^2 - 14660 \alpha_2 x_1 x_3^2 \alpha_1^3 \alpha_3^8 - 1872 x_1 x_2 x_3^2 \alpha_2^9 \alpha_3^9 \alpha_1 \\
& + 130764 \alpha_2^9 x_1^2 x_3^3 \alpha_3 + 312 \alpha_2^9 x_1^2 x_3^3 \alpha_1^3 + 380080 \alpha_2^{11} x_1^2 x_3 \alpha_3 \\
& - 9120 \alpha_2^{11} x_1^2 x_3 \alpha_1 - 145716 \alpha_2 x_1^2 x_3 \alpha_1^5 \alpha_3^6 + 33986 \alpha_2 x_1^2 x_3 \alpha_1^3 \alpha_3^8 \\
& + 785448 x_1 x_2 x_3^2 \alpha_2^6 \alpha_1^3 \alpha_3^3 - 791100 x_1 x_2 x_3^2 \alpha_2^4 \alpha_1^4 \alpha_3^4 + 6768 x_1 x_2 x_3^2 \alpha_2^8 \alpha_1^4 \\
& - 399632 x_1 x_2 x_3^2 \alpha_2^{10} \alpha_1 \alpha_3 + 1872 x_1 x_2 x_3^2 \alpha_2^4 \alpha_3^8 - 6308 x_1 x_2 x_3^2 \alpha_2^6 \alpha_1^4 \alpha_3^2 \\
& - 121140 x_1 x_2 x_3^2 \alpha_2^8 \alpha_1^3 \alpha_3 - 10224 x_1 x_2 x_3^2 \alpha_2^6 \alpha_1^5 \alpha_3 - 1008 x_1 x_2 x_3^2 \alpha_2^4 \alpha_1^6 \alpha_3^2
\end{aligned}$$

$$\begin{aligned}
& + 150400 x_1 x_2 x_3 \alpha_2^{12} - 64508 x_1 x_2 x_3 \alpha_1^6 \alpha_3^4 \alpha_2^2 + 36532 x_1 x_2 x_3 \alpha_1^2 \alpha_3^8 \alpha_2^2 \\
& - 120024 x_1 x_2 x_3 \alpha_1^4 \alpha_3^6 \alpha_2^2 + 525316 x_1 x_2 x_3 \alpha_2^4 \alpha_3^5 \alpha_1^3 \\
& - 851856 x_1 x_2 x_3 \alpha_2^6 \alpha_3^4 \alpha_1^2 + 131892 x_1 x_2 x_3 \alpha_1^5 \alpha_3^3 \alpha_2^4 \\
& - 87952 x_1 x_2 x_3 \alpha_1^3 \alpha_3^7 \alpha_2^2 + 600660 x_1 x_2 x_3 \alpha_2^8 \alpha_3^3 \alpha_1 + 332572 x_1 x_2 x_3 \alpha_2^4 \alpha_3^6 \alpha_1^2 \\
& - 81272 x_1 x_2 x_3 \alpha_2^4 \alpha_3^7 \alpha_1 - 414248 x_1 x_2 x_3 \alpha_2^6 \alpha_3^5 \alpha_1 + 233360 x_1 x_2 x_3 \alpha_1^5 \alpha_3^5 \alpha_2^2 \\
& + 4464 x_1 x_2 x_3 \alpha_1^7 \alpha_3^3 \alpha_2^2 + 21524 x_1 x_2 x_3 \alpha_2^8 \alpha_3^2 \alpha_1^2 - 154096 x_1 x_2 x_3 \alpha_2^{10} \alpha_3^2 \\
& + 44740 x_1 x_2 x_3 \alpha_2^6 \alpha_3^6 + 60064 x_1 x_2 x_3 \alpha_2^{10} \alpha_1^2 + 253164 \alpha_2^9 x_2^2 x_3 \alpha_1^2 \alpha_3 \\
& - 168390 \alpha_2^3 x_2^2 x_3 \alpha_1^5 \alpha_3^4 + 18360 \alpha_2^3 x_2^2 x_3 \alpha_1^6 \alpha_3^3 - 617478 \alpha_2^7 x_2^2 x_3 \alpha_3^2 \alpha_1^3 \\
& + 169628 x_1 x_2 x_3 \alpha_2^8 \alpha_3^4 + 57036 \alpha_2^5 x_2^2 x_3 \alpha_3^6 \alpha_1 - 30024 \alpha_2^5 x_2^2 x_3 \alpha_3^5 \alpha_1^2 \\
& - 7242 \alpha_2^3 x_2^2 x_3 \alpha_3^6 \alpha_1^3 - 1719516 \alpha_2^5 x_2^2 x_3 \alpha_1^3 \alpha_3^4 + 96894 \alpha_2^7 x_2^2 x_3 \alpha_3^4 \alpha_1 \\
& + 554304 \alpha_2^5 x_2^2 x_3 \alpha_1^4 \alpha_3^3 + 2824578 \alpha_2^7 x_2^2 x_3 \alpha_3^3 \alpha_1^2 - 24738 \alpha_2^3 x_2^2 x_3 \alpha_3^7 \alpha_1^2 \\
& + 1512 \alpha_2^3 x_2^2 x_3 \alpha_3^8 \alpha_1 - 360 \alpha_2^4 x_4^3 \alpha_3^7 + 20736 \alpha_2^7 x_2^2 x_3 \alpha_1^4 \alpha_3 \\
& - 2026920 \alpha_2^9 x_2^2 x_3 \alpha_3^2 \alpha_1 - 37152 \alpha_2^5 x_2^2 x_3 \alpha_1^5 \alpha_3^2 + 387858 \alpha_2^3 x_2^2 x_3 \alpha_1^4 \alpha_3^5 \\
& + 31600 \alpha_2^{10} x_4^3 \alpha_3 + 534000 \alpha_2^{11} x_2^2 x_3 \alpha_3 - 1512 \alpha_2^5 x_2^2 x_3 \alpha_3^7 \\
& - 32298 \alpha_2^7 x_2^2 x_3 \alpha_3^5 - 21600 \alpha_2^{11} x_2^2 x_3 \alpha_1 + 3704 \alpha_2^8 x_4^3 \alpha_1^3 \\
& - 59628 \alpha_2^9 x_2^2 x_3 \alpha_3^3 - 879880 x_4 x_3 x_1 \alpha_2^8 \alpha_1^4 + 85120 x_4 x_3 x_1 \alpha_1^6 \alpha_3^6 \\
& - 29840 x_4 x_3 x_1 \alpha_1^8 \alpha_3^4 - 8137990 x_4 x_3 x_1 \alpha_2^4 \alpha_1^4 \alpha_3^4 - 264800 x_4 x_3 x_1 \alpha_2^{10} \alpha_1 \alpha_3 \\
& - 6106 \alpha_2^6 x_4^3 \alpha_3^5 + 2880 x_4 x_3 x_1 \alpha_1^9 \alpha_3^3 + 2230840 x_4 x_3 x_1 \alpha_2^6 \alpha_1^5 \alpha_3 \\
& - 1927120 x_4 x_3 x_1 \alpha_2^4 \alpha_1^6 \alpha_3^2 + 11344540 x_4 x_3 x_1 \alpha_2^6 \alpha_1^3 \alpha_3^3 \\
& + 590620 x_4 x_3 x_1 \alpha_2^6 \alpha_3^5 \alpha_1 + 100800 x_4 x_3 x_1 \alpha_1^7 \alpha_2^4 \alpha_3 - 47520 x_4 x_3 x_1 \alpha_1^8 \alpha_3^2 \alpha_2^2 \\
& + 5600 \alpha_2^{10} x_4^3 \alpha_1 + 103280 x_4 x_3 x_1 \alpha_1^4 \alpha_3^8 - 320610 x_4 x_3 x_1 \alpha_2^4 \alpha_3^6 \alpha_1^2 \\
& - 3485100 x_4 x_3 x_1 \alpha_2^{10} \alpha_1^2 + 8861970 x_4 x_3 x_1 \alpha_1^5 \alpha_3^3 \alpha_2^4 \\
& - 2044320 x_4 x_3 x_1 \alpha_1^6 \alpha_3^4 \alpha_2^2 + 13440 x_4 x_3 x_1 \alpha_1^2 \alpha_3^8 \alpha_2^2 \\
& - 110640 x_4 x_3 x_1 \alpha_1^3 \alpha_3^7 \alpha_2^2 + 610000 x_4 x_3 x_1 \alpha_2^{12} + 1907520 x_4 x_3 x_1 \alpha_1^5 \alpha_3^5 \alpha_2^2 \\
& + 606000 x_4 x_3 x_1 \alpha_1^7 \alpha_3^3 \alpha_2^2 - 5544390 x_4 x_3 x_1 \alpha_2^8 \alpha_3^2 \alpha_1^2 \\
& - 3476160 x_4 x_3 x_1 \alpha_2^6 \alpha_3^4 \alpha_1^2 - 321600 x_4 x_3 x_1 \alpha_1^4 \alpha_3^6 \alpha_2^2 \\
& + 2399150 x_4 x_3 x_1 \alpha_2^4 \alpha_3^5 \alpha_1^3 - 1944 \alpha_2^9 x_2^2 x_3 \alpha_1^3 - 34760 x_4 x_3 x_1 \alpha_2^6 \alpha_3^6 \\
& - 168160 x_4 x_3 x_1 \alpha_1^5 \alpha_3^7 + 1986470 x_4 x_3 x_1 \alpha_2^8 \alpha_3^3 \alpha_1 + 43800 x_4 x_3 x_1 \alpha_2^4 \alpha_3^7 \alpha_1
\end{aligned}$$

$$\begin{aligned}
& + 27760 x_4 x_3 x_1 \alpha_1^7 \alpha_3^5 - 15026920 x_4 x_3 x_1 \alpha_2^6 \alpha_1^4 \alpha_3^2 \\
& + 11666610 x_4 x_3 x_1 \alpha_2^8 \alpha_1^3 \alpha_3 - 56160 x_4 x_3 x_1 \alpha_1^6 \alpha_2^6 - 8640 \alpha_2^5 x_4 x_3 x_2 \alpha_1^7 \\
& - 134520 \alpha_2^7 x_4 x_3 x_2 \alpha_1^5 + 580520 \alpha_2^3 x_4 x_3 x_2 \alpha_3^7 \alpha_1^2 - 730240 \alpha_2^5 x_4 x_3 x_2 \alpha_3^6 \alpha_1 \\
& + 14303990 \alpha_2^9 x_4 x_3 x_2 \alpha_1^2 \alpha_3 + 291040 \alpha_2^7 x_4 x_3 x_2 \alpha_3^5 \\
& - 5974440 \alpha_2^3 x_4 x_3 x_2 \alpha_1^5 \alpha_3^4 + 2100000 \alpha_2^3 x_4 x_3 x_2 \alpha_1^6 \alpha_3^3 \\
& - 20908140 \alpha_2^7 x_4 x_3 x_2 \alpha_3^2 \alpha_1^3 - 22480 x_4 x_3 x_1 \alpha_1^3 \alpha_3^9 - 262650 x_4 x_3 x_1 \alpha_2^8 \alpha_3^4 \\
& - 419700 x_4 x_3 x_1 \alpha_2^{10} \alpha_3^2 - 15027210 \alpha_2^5 x_4 x_3 x_2 \alpha_1^3 \alpha_3^4 + 348120 \alpha_2^5 x_4 x_3 x_2 \alpha_1^6 \alpha_3^6 \\
& + 15641870 \alpha_2^5 x_4 x_3 x_2 \alpha_1^4 \alpha_3^3 + 16945220 \alpha_2^7 x_4 x_3 x_2 \alpha_3^3 \alpha_1^2 \\
& + 93120 \alpha_2 x_4 x_3 x_2 \alpha_1^8 \alpha_3^3 - 8640 \alpha_2 x_4 x_3 x_2 \alpha_1^9 \alpha_3^2 - 3989400 \alpha_2^{11} x_4 x_3 x_2 \alpha_1 \\
& - 439720 \alpha_2 x_4 x_3 x_2 \alpha_1^7 \alpha_3^4 + 1594600 \alpha_2^{11} x_4 x_3 x_2 \alpha_3 + 926120 \alpha_2 x_4 x_3 x_2 \alpha_1^6 \alpha_3^5 \\
& - 20556 \alpha_2^8 x_4^3 \alpha_3^3 + 6231640 \alpha_2^3 x_4 x_3 x_2 \alpha_1^4 \alpha_3^5 + 3393220 \alpha_2^7 x_4 x_3 x_2 \alpha_1^4 \alpha_3 \\
& - 8783370 \alpha_2^9 x_4 x_3 x_2 \alpha_3^2 \alpha_1 - 4247860 \alpha_2^7 x_4 x_3 x_2 \alpha_3^4 \alpha_1 \\
& - 306720 \alpha_2^3 x_4 x_3 x_2 \alpha_1^7 \alpha_3^2 + 509200 \alpha_2 x_4 x_3 x_2 \alpha_1^4 \alpha_3^7 \\
& + 5243250 \alpha_2^5 x_4 x_3 x_2 \alpha_3^5 \alpha_1^2 - 2735080 \alpha_2^3 x_4 x_3 x_2 \alpha_3^6 \alpha_1^3 \\
& - 1122150 \alpha_2^9 x_4 x_3 x_2 \alpha_1^3 - 960880 \alpha_2 x_4 x_3 x_2 \alpha_1^5 \alpha_3^6 + 17280 \alpha_2^3 x_4 x_3 x_2 \alpha_1^8 \alpha_3^8 \\
& - 3931350 \alpha_2^5 x_4 x_3 x_2 \alpha_1^5 \alpha_3^2 + 288 \alpha_2^6 x_4^3 \alpha_1^5 - 1639000 \alpha_2^{12} x_2^2 x_4^2 \\
& - 141320 \alpha_2 x_4 x_3 x_2 \alpha_1^3 \alpha_3^8 + 1230490 \alpha_2^9 x_4 x_3 x_2 \alpha_3^3 + 16920 \alpha_2^5 x_3 x_4^2 \alpha_1^5 \alpha_3^5 \\
& - 6912 \alpha_2^3 x_3 x_4^2 \alpha_1^6 \alpha_3^2 - 469938 \alpha_2^7 x_3 x_4^2 \alpha_1^2 \alpha_3^2 + 272900 \alpha_2^5 x_3 x_4^2 \alpha_1^3 \alpha_3^3 \\
& - 69410 \alpha_2^3 x_3 x_4^2 \alpha_1^4 \alpha_3^4 + 396248 \alpha_2^9 x_3 x_4^2 \alpha_1 \alpha_3 - 11766 \alpha_2^3 x_3 x_4^2 \alpha_3^7 \alpha_1 \\
& + 18246 \alpha_2^5 x_3 x_4^2 \alpha_3^6 + 1080 \alpha_2^3 x_3 x_4^2 \alpha_3^8 + 14002 \alpha_2^3 x_3 x_4^2 \alpha_1^2 \alpha_3^6 \\
& + 28680 \alpha_2^3 x_3 x_4^2 \alpha_1^5 \alpha_3^3 - 8928 \alpha_2^7 x_3 x_4^2 \alpha_1^4 - 1610565 \alpha_2^5 x_1 x_4^2 \alpha_1^4 \alpha_3^3 \\
& + 8640 \alpha_2 x_1 x_4^2 \alpha_1^9 \alpha_3^2 - 1459640 \alpha_2^3 x_1 x_4^2 \alpha_1^6 \alpha_3^3 - 66972 \alpha_2^6 x_4 x_2^2 \alpha_3^5 \alpha_1 \\
& + 151224 \alpha_2^{10} x_4 x_2^2 \alpha_3^2 - 2960685 \alpha_2^9 x_1 x_4^2 \alpha_3^2 \alpha_1 - 533850 \alpha_2^7 x_1 x_4^2 \alpha_3^4 \alpha_1 \\
& + 307880 \alpha_2^3 x_1 x_4^2 \alpha_1^7 \alpha_3^2 - 185440 \alpha_2 x_1 x_4^2 \alpha_1^4 \alpha_3^7 + 50105 \alpha_2^5 x_1 x_4^2 \alpha_3^5 \alpha_1^2 \\
& + 383100 \alpha_2^3 x_1 x_4^2 \alpha_3^6 \alpha_1^3 - 133205 \alpha_2^5 x_1 x_4^2 \alpha_1^3 \alpha_3^4 - 439540 \alpha_2^5 x_1 x_4^2 \alpha_1^6 \alpha_3^6 \\
& + 492960 \alpha_2 x_1 x_4^2 \alpha_1^5 \alpha_3^6 - 24480 \alpha_2^3 x_1 x_4^2 \alpha_1^8 \alpha_3 + 2613425 \alpha_2^5 x_1 x_4^2 \alpha_1^5 \alpha_3^2 \\
& - 1239580 \alpha_2^3 x_1 x_4^2 \alpha_1^4 \alpha_3^5 + 318160 \alpha_2 x_1 x_4^2 \alpha_1^7 \alpha_3^4 - 589600 \alpha_2 x_1 x_4^2 \alpha_1^6 \alpha_3^5 \\
& - 2204990 \alpha_2^7 x_1 x_4^2 \alpha_1^4 \alpha_3 + 37266 \alpha_2^8 x_4 x_2^2 \alpha_3^4 + 28240 \alpha_2 x_1 x_4^2 \alpha_1^3 \alpha_3^8
\end{aligned}$$

$$\begin{aligned}
& -79056 \alpha_2^{10} x_4 x_2^2 \alpha_1^2 + 286085 \alpha_2^9 x_1 x_4^2 \alpha_3^3 + 733045 \alpha_2^9 x_1 x_4^2 \alpha_1^3 \\
& + 946900 \alpha_2^{11} x_1 x_4^2 \alpha_3 - 477100 \alpha_2^{11} x_1 x_4^2 \alpha_1 + 25480 \alpha_2^7 x_1 x_4^2 \alpha_3^5 \\
& + 15840 \alpha_2^5 x_1 x_4^2 \alpha_1^7 + 203180 \alpha_2^7 x_1 x_4^2 \alpha_1^5 + 7221590 \alpha_2^6 x_2 x_4^2 \alpha_1^3 \alpha_3^3 \\
& - 2371475 \alpha_2^4 x_2 x_4^2 \alpha_1^4 \alpha_3^4 + 6622320 \alpha_2^{10} x_2 x_4^2 \alpha_1 \alpha_3 + 268760 \alpha_2^2 x_2 x_4^2 \alpha_1^5 \alpha_3^5 \\
& - 10102195 \alpha_2^8 x_2 x_4^2 \alpha_1^2 \alpha_3^2 - 5450 \alpha_2^6 x_2 x_4^2 \alpha_1^5 \alpha_3 - 115805 \alpha_2^4 x_2 x_4^2 \alpha_1^6 \alpha_3^2 \\
& - 839990 \alpha_2^{10} x_2 x_4^2 \alpha_3^2 + 355980 \alpha_2^6 x_2 x_4^2 \alpha_3^5 \alpha_1 - 2921300 \alpha_2^6 x_2 x_4^2 \alpha_1^2 \alpha_3^4 \\
& + 136875 \alpha_2^8 x_2 x_4^2 \alpha_1^3 \alpha_3 - 754620 \alpha_2^6 x_2 x_4^2 \alpha_1^4 \alpha_3^2 + 68520 \alpha_2^2 x_2 x_4^2 \alpha_1^7 \alpha_3^3 \\
& + 2340 \alpha_2^4 x_2 x_4^2 \alpha_1^7 \alpha_3 - 4320 \alpha_2^2 x_2 x_4^2 \alpha_1^8 \alpha_3^2 + 671655 \alpha_2^4 x_2 x_4^2 \alpha_1^5 \alpha_3^3 \\
& + 1330185 \alpha_2^4 x_2 x_4^2 \alpha_1^3 \alpha_3^5 - 201120 \alpha_2^2 x_2 x_4^2 \alpha_1^4 \alpha_3^6 - 176220 \alpha_2^2 x_2 x_4^2 \alpha_1^6 \alpha_3^4 \\
& + 2632225 \alpha_2^8 x_2 x_4^2 \alpha_1^3 \alpha_3^7 + 54000 \alpha_2^2 x_2 x_4^2 \alpha_1^3 \alpha_3^7 - 151440 \alpha_2^8 x_2 x_4^2 \alpha_3^4 \\
& + 122310 \alpha_2^{10} x_2 x_4^2 \alpha_1^2 + 52735 \alpha_2^8 x_2 x_4^2 \alpha_1^4 + 1980 \alpha_2^6 x_2 x_4^2 \alpha_1^6 \\
& - 258540 \alpha_2^4 x_2 x_4^2 \alpha_1^2 \alpha_3^6 - 648 \alpha_2^4 x_4^3 \alpha_1^6 \alpha_3 - 132208 \alpha_2^8 x_4^3 \alpha_3^2 \alpha_1 \\
& - 1820 \alpha_2^4 x_4^3 \alpha_1^2 \alpha_3^5 + 16976 \alpha_2^6 x_4^3 \alpha_3^4 \alpha_1 - 40724 \alpha_2^4 x_4^3 \alpha_1^3 \alpha_3^4 \\
& + 3946 \alpha_2^4 x_4^3 \alpha_3^6 \alpha_1 - 29948 \alpha_2^8 x_4^3 \alpha_1^2 \alpha_3 - 12362 \alpha_2^6 x_4^3 \alpha_1^4 \alpha_3 \\
& - 1452 \alpha_2^4 x_4^3 \alpha_1^4 \alpha_3^3 + 20400 \alpha_2^6 x_4^3 \alpha_1^3 \alpha_3^2 + 6498 \alpha_2^4 x_4^3 \alpha_1^5 \alpha_3^2 \\
& + 26172 \alpha_2^3 x_1 x_3 \alpha_3^8 \alpha_1 + 131314 \alpha_2^5 x_1 x_3 \alpha_3^6 \alpha_1 + 194388 \alpha_2^9 x_1 x_3 \alpha_1^2 \alpha_3 \\
& - 516686 \alpha_2^3 x_1 x_3 \alpha_1^5 \alpha_3^4 - 114692 \alpha_2^3 x_1 x_3 \alpha_3^7 \alpha_1^2 + 86194 \alpha_2^3 x_1 x_3 \alpha_1^6 \alpha_3^3 \\
& - 641634 \alpha_2^7 x_1 x_3 \alpha_3^2 \alpha_1^3 + 134132 \alpha_2^6 x_4^3 \alpha_3^3 \alpha_1^2 + 854494 \alpha_2^5 x_1 x_3 \alpha_1^4 \alpha_3^3 \\
& + 2433234 \alpha_2^7 x_1 x_3 \alpha_3^3 \alpha_1^2 + 1944 \alpha_2^2 x_1 x_3 \alpha_1^8 \alpha_3^3 - 50608 \alpha_2^7 x_1 x_3 \alpha_3^5 \\
& + 360 \alpha_2^7 x_1 x_3 \alpha_1^5 + 26870 \alpha_2^7 x_1 x_3 \alpha_1^4 \alpha_3 - 1511960 \alpha_2^9 x_1 x_3 \alpha_3^2 \alpha_1 \\
& - 404430 \alpha_2^7 x_1 x_3 \alpha_3^4 \alpha_1 - 3240 \alpha_2^3 x_1 x_3 \alpha_1^7 \alpha_3^2 + 31252 \alpha_2^2 x_1 x_3 \alpha_1^4 \alpha_3^7 \\
& + 445660 \alpha_2^5 x_1 x_3 \alpha_3^5 \alpha_1^2 - 203246 \alpha_2^3 x_1 x_3 \alpha_3^6 \alpha_1^3 - 1996984 \alpha_2^5 x_1 x_3 \alpha_1^3 \alpha_3^4 \\
& + 936 \alpha_2^5 x_1 x_3 \alpha_1^6 \alpha_3 - 11754 \alpha_2^2 x_1 x_3 \alpha_1^9 \alpha_3 - 84458 \alpha_2^5 x_1 x_3 \alpha_1^5 \alpha_3^2 \\
& + 841346 \alpha_2^3 x_1 x_3 \alpha_1^4 \alpha_3^5 - 28918 \alpha_2^2 x_1 x_3 \alpha_1^7 \alpha_3^4 + 118558 \alpha_2^2 x_1 x_3 \alpha_1^6 \alpha_3^5 \\
& - 14418 \alpha_2^5 x_1 x_3 \alpha_3^7 - 633165 \alpha_2^6 x_2 \alpha_1^3 \alpha_3^5 \alpha_1^2 - 640815 \alpha_2^4 x_2 \alpha_1^3 \alpha_3^4 \alpha_1^5 \\
& + 35620 \alpha_2^2 x_2 \alpha_1^3 \alpha_3^7 - 42200 \alpha_2^2 x_2 \alpha_1^6 \alpha_3^5 - 809700 \alpha_2^{12} x_2^3 \alpha_3 \\
& + 92640 \alpha_2^2 x_2 \alpha_1^3 \alpha_3^5 - 24020 \alpha_2^8 x_2^3 \alpha_3^5 + 15740 \alpha_2^2 x_2^3 \alpha_1^3 \alpha_3^8 \\
& - 648 x_1^2 x_4^2 \alpha_2^9 \alpha_3 \alpha_1 - 266105 \alpha_2^{10} x_2^3 \alpha_3^3 - 295875 \alpha_2^{10} x_2^3 \alpha_1^3
\end{aligned}$$

$$\begin{aligned}
& -1586700 \alpha_2^{12} x_2^3 \alpha_1 + 257844 x_1^2 x_4 \alpha_2^6 \alpha_1 \alpha_3^3 + 138194 x_1^2 x_4 \alpha_2^4 \alpha_1^4 \alpha_3^4 \\
& + 888376 x_1^2 x_4 \alpha_2^{10} \alpha_1 \alpha_3 - 82696 x_1^2 x_4 \alpha_2^4 \alpha_1^6 \alpha_3^2 + 648 x_1^2 x_4 \alpha_2^4 \alpha_3^8 \\
& - 27688 x_1^2 x_4 \alpha_2^8 \alpha_1^4 + 83312 x_1^2 x_4 \alpha_2^6 \alpha_1^5 \alpha_3 + 4032 x_1^2 x_4 \alpha_1^7 \alpha_2^4 \alpha_3 \\
& - 2160 x_1^2 x_4 \alpha_1^8 \alpha_3^2 \alpha_2^2 - 572026 x_1^2 x_4 \alpha_2^6 \alpha_1^4 \alpha_3^2 + 458102 x_1^2 x_4 \alpha_2^8 \alpha_1^3 \alpha_3 \\
& - 1872 x_1^2 x_4 \alpha_1^6 \alpha_2^6 - 31212 x_1^2 x_4 \alpha_2^4 \alpha_3^7 \alpha_1 - 289564 x_1^2 x_4 \alpha_2^6 \alpha_3^5 \alpha_1 \\
& - 135472 x_1^2 x_4 \alpha_2^{10} \alpha_1^2 - 81552 x_1^2 x_4 \alpha_1^3 \alpha_3^7 \alpha_2^2 - 618982 x_1^2 x_4 \alpha_2^8 \alpha_3^3 \alpha_1 \\
& + 265166 x_1^2 x_4 \alpha_2^4 \alpha_3^6 \alpha_1^2 - 930342 x_1^2 x_4 \alpha_2^8 \alpha_3^2 \alpha_1^2 + 987752 x_1^2 x_4 \alpha_2^6 \alpha_3^4 \alpha_1^2 \\
& + 176772 x_1^2 x_4 \alpha_1^4 \alpha_3^6 \alpha_2^2 + 27072 x_1^2 x_4 \alpha_1^7 \alpha_3^3 \alpha_2^2 - 688590 x_1^2 x_4 \alpha_2^4 \alpha_3^5 \alpha_1^3 \\
& + 312282 x_1^2 x_4 \alpha_1^5 \alpha_3^3 \alpha_2^4 - 62886 x_1^2 x_4 \alpha_1^6 \alpha_3^4 \alpha_2^2 + 14274 x_1^2 x_4 \alpha_1^2 \alpha_3^8 \alpha_2^2 \\
& - 61900 \alpha_2^3 x_1 x_4 x_2 \alpha_1^5 \alpha_3^4 + 61392 \alpha_2^3 x_1 x_4 x_2 \alpha_1^6 \alpha_3^3 - 376396 \alpha_2^7 x_1 x_4 x_2 \alpha_3^2 \alpha_1^3 \\
& - 43876 \alpha_2^3 x_1 x_4 x_2 \alpha_3^7 \alpha_1^2 + 1872 \alpha_2^3 x_1 x_4 x_2 \alpha_3^8 \alpha_1 + 95960 \alpha_2^5 x_1 x_4 x_2 \alpha_3^6 \alpha_1 \\
& + 226968 \alpha_2^9 x_1 x_4 x_2 \alpha_1^2 \alpha_3 - 45760 \alpha_2^{11} x_1 x_4 x_2 \alpha_1 - 2125500 \alpha_2^7 x_1 x_4 x_2 \alpha_3^3 \alpha_1^2 \\
& - 52084 \alpha_2^7 x_1 x_4 x_2 \alpha_3^5 - 7488 \alpha_2^7 x_1 x_4 x_2 \alpha_1^5 - 70872 x_1^2 x_4 \alpha_1^5 \alpha_3^5 \alpha_2^2 \\
& + 16128 \alpha_2^5 x_1 x_4 x_2 \alpha_1^6 \alpha_3 + 257088 \alpha_2^5 x_1 x_4 x_2 \alpha_1^4 \alpha_3^3 - 702544 \alpha_2^5 x_1 x_4 x_2 \alpha_3^5 \alpha_1^2 \\
& + 202348 \alpha_2^3 x_1 x_4 x_2 \alpha_3^6 \alpha_1^3 + 1274824 \alpha_2^5 x_1 x_4 x_2 \alpha_1^3 \alpha_3^4 \\
& + 811004 \alpha_2^7 x_1 x_4 x_2 \alpha_3^4 \alpha_1 - 8640 \alpha_2^3 x_1 x_4 x_2 \alpha_1^7 \alpha_3^2 - 1872 \alpha_2^5 x_1 x_4 x_2 \alpha_3^7 \\
& + 171104 \alpha_2^7 x_1 x_4 x_2 \alpha_1^4 \alpha_3 + 1591472 \alpha_2^9 x_1 x_4 x_2 \alpha_3^2 \alpha_1 - 2007000 \alpha_2^{13} x_1^3 \\
& - 179584 \alpha_2^5 x_1 x_4 x_2 \alpha_1^5 \alpha_3^2 - 289436 \alpha_2^3 x_1 x_4 x_2 \alpha_1^4 \alpha_3^5 - 451360 \alpha_2^{11} x_1 x_4 x_2 \alpha_3 \\
& - 283200 x_1^2 x_4 \alpha_2^{12} - 11448 \alpha_2^4 x_4 x_2 \alpha_1^2 \alpha_3^2 - 52912 \alpha_2^9 x_1 x_4 x_2 \alpha_1^3 \\
& + 21384 \alpha_2^6 x_4 x_2 \alpha_1^5 \alpha_3 - 310808 \alpha_2^9 x_1 x_4 x_2 \alpha_3^3 - 1512 \alpha_2^4 x_4 x_2 \alpha_3^7 \alpha_1 \\
& - 912114 \alpha_2^8 x_4 x_2 \alpha_1^2 \alpha_3^2 + 586044 \alpha_2^6 x_4 x_2 \alpha_1^3 \alpha_3^3 - 134898 \alpha_2^4 x_4 x_2 \alpha_1^4 \alpha_3^4 \\
& + 590568 \alpha_2^{10} x_4 x_2 \alpha_1 \alpha_3 - 351810 \alpha_2^8 x_4 x_2 \alpha_1^3 \alpha_3 + 265068 \alpha_2^6 x_4 x_2 \alpha_1^2 \alpha_3^4 \\
& + 244626 \alpha_2^8 x_4 x_2 \alpha_1^3 \alpha_3 - 244524 \alpha_2^6 x_4 x_2 \alpha_1^4 \alpha_3^2 - 9936 \alpha_2^8 x_4 x_2 \alpha_1^4 \\
& + 1512 \alpha_2^6 x_4 x_2 \alpha_3^6 + 105950 x_1^2 x_4 \alpha_2^8 \alpha_3^4 + 143048 x_1^2 x_4 \alpha_2^{10} \alpha_3^2 \\
& + 16938 x_1^2 x_4 \alpha_2^6 \alpha_3^6 - 715230 \alpha_2^7 x_1 x_4 \alpha_3^2 \alpha_1^2 + 29706 \alpha_2^4 x_4 x_2 \alpha_1^2 \alpha_3^6 \\
& + 78954 \alpha_2^4 x_4 x_2 \alpha_1^5 \alpha_3^3 - 64482 \alpha_2^4 x_4 x_2 \alpha_1^3 \alpha_3^5 - 36940 \alpha_2^3 x_1 x_4 \alpha_3^7 \alpha_1^2 \\
& - 16780 \alpha_2^5 x_1 x_4 \alpha_3^6 \alpha_1 + 1486275 \alpha_2^9 x_1 x_4 \alpha_1^2 \alpha_3^2 + 1906220 \alpha_2^3 x_1 x_4 \alpha_1^5 \alpha_3^4 \\
& + 2893610 \alpha_2^7 x_1 x_4 \alpha_3^3 \alpha_1^2 - 71520 \alpha_2 x_1 x_4 \alpha_1^8 \alpha_3^3 + 18174950 \alpha_2^7 x_1 \alpha_1^3 \alpha_3^3
\end{aligned}$$

$$\begin{aligned}
& -11415350 \alpha_2^5 x_1^3 \alpha_1^4 \alpha_3^4 - 670520 \alpha_2 x_1^3 \alpha_1^6 \alpha_3^6 - 426020 \alpha_2 x_1^3 \alpha_1^8 \alpha_3^4 \\
& + 9051260 \alpha_2^{11} x_1^3 \alpha_1 \alpha_3 + 76800 \alpha_2 x_1^3 \alpha_1^9 \alpha_3^3 - 4320 \alpha_2 x_1^3 \alpha_1^{10} \alpha_3^2 \\
& + 2071175 \alpha_2^7 x_1^3 \alpha_1^5 \alpha_3 - 2907375 \alpha_2^5 x_1^3 \alpha_1^6 \alpha_3^2 - 553665 \alpha_2^9 x_1^3 \alpha_1^4 \\
& - 243720 \alpha_2^3 x_1^3 \alpha_1^8 \alpha_3^2 + 834940 \alpha_2 x_1^3 \alpha_1^7 \alpha_3^5 - 9927850 \alpha_2^7 x_1^3 \alpha_1^4 \alpha_3^2 \\
& + 5421010 \alpha_2^9 x_1^3 \alpha_1^3 \alpha_3 + 8640 \alpha_2^3 x_1^3 \alpha_1^9 \alpha_3 + 178520 \alpha_2 x_1^3 \alpha_1^5 \alpha_3^7 \\
& - 4350220 \alpha_2^3 x_1^3 \alpha_1^6 \alpha_3^4 + 17605 \alpha_2^3 x_1^3 \alpha_1^3 \alpha_3^7 + 3379170 \alpha_2^9 x_1^3 \alpha_1^3 \alpha_3 \\
& + 13580 \alpha_2 x_1^3 \alpha_1^4 \alpha_3^8 - 153735 \alpha_2^5 x_1^3 \alpha_1^6 \alpha_3^2 + 200335 \alpha_2^7 x_1^3 \alpha_1^5 \alpha_3 \\
& + 257040 \alpha_2^5 x_1^3 \alpha_1^7 \alpha_3 + 9220290 \alpha_2^5 x_1^3 \alpha_1^5 \alpha_3^3 + 2467775 x_1^2 x_2 \alpha_1^6 \alpha_2^4 \alpha_3^3 \\
& - 1999540 x_1^2 x_2 \alpha_1^6 \alpha_2^2 \alpha_3^5 - 187420 x_1^2 x_2 \alpha_2^8 \alpha_3^5 - 807865 x_1^2 x_2 \alpha_2^{10} \alpha_3^3 \\
& - 1224875 x_1^2 x_2 \alpha_1^3 \alpha_2^{10} + 822680 x_1^2 x_2 \alpha_1^6 \alpha_2^6 \alpha_3 - 678500 x_1^2 x_2 \alpha_2^{12} \alpha_3 \\
& + 4125030 \alpha_2^3 x_1^3 \alpha_1^5 \alpha_3^5 + 1815885 \alpha_2^3 x_1^3 \alpha_1^7 \alpha_3^3 - 17258370 \alpha_2^9 x_1^3 \alpha_1^2 \alpha_3^2 \\
& - 4972610 \alpha_2^7 x_1^3 \alpha_1^4 \alpha_3^2 - 1261020 \alpha_2^3 x_1^3 \alpha_1^4 \alpha_3^6 + 3572510 \alpha_2^5 x_1^3 \alpha_1^5 \alpha_3^3 \\
& + 3476720 x_1^2 x_2 \alpha_1^5 \alpha_2^2 \alpha_3^6 + 3067575 x_1^2 x_2 \alpha_1^5 \alpha_2^4 \alpha_3^4 \\
& - 5389265 x_1^2 x_2 \alpha_1^5 \alpha_2^6 \alpha_3^2 - 3600 x_1^2 x_2 \alpha_1^{10} \alpha_3^3 - 593760 x_1^2 x_2 \alpha_1^6 \alpha_3^7 \\
& - 16560 x_1^2 x_2 \alpha_1^7 \alpha_2^6 + 55300 x_1^2 x_2 \alpha_1^9 \alpha_3^4 - 3669145 x_1^2 x_2 \alpha_1^4 \alpha_2^6 \alpha_3^3 \\
& + 4316725 x_1^2 x_2 \alpha_1^4 \alpha_2^8 \alpha_3 - 9021855 x_1^2 x_2 \alpha_1^4 \alpha_2^4 \alpha_3^5 - 2092160 x_1^2 x_2 \alpha_1^4 \alpha_2^2 \alpha_3^7 \\
& + 4415725 x_1^2 x_2 \alpha_1^3 \alpha_2^8 \alpha_3^2 + 493480 x_1^2 x_2 \alpha_1^3 \alpha_2^2 \alpha_3^8 \\
& + 12885785 x_1^2 x_2 \alpha_1^3 \alpha_2^6 \alpha_3^4 + 4254195 x_1^2 x_2 \alpha_1 \alpha_2^{10} \alpha_3^2 \\
& + 5055145 x_1^2 x_2 \alpha_1^3 \alpha_2^4 \alpha_3^6 + 29520 x_1^2 x_2 \alpha_1^8 \alpha_2^4 \alpha_3 + 84760 x_1^2 x_2 \alpha_1^8 \alpha_2^2 \alpha_3^3 \\
& - 9360 x_1^2 x_2 \alpha_1^9 \alpha_2^2 \alpha_3^2 + 89720 x_1^2 x_2 \alpha_1^7 \alpha_2^2 \alpha_3^4 - 649080 x_1^2 x_2 \alpha_1^7 \alpha_2^4 \alpha_3^2 \\
& + 342700 x_1^2 x_2 \alpha_1^5 \alpha_2^8 \alpha_3 - 313660 x_1^2 x_2 \alpha_1^5 \alpha_2^8 + 547700 x_1^2 x_2 \alpha_1^7 \alpha_3^6 \\
& + 1020500 x_1^2 x_2 \alpha_1 \alpha_2^{12} - 101840 x_1^2 x_2 \alpha_1^4 \alpha_3^9 - 260080 x_1^2 x_2 \alpha_1^8 \alpha_3^5 \\
& - 868860 x_1^2 x_2 \alpha_1^2 \alpha_2^4 \alpha_3^7 - 3382815 x_1^2 x_2 \alpha_1^2 \alpha_2^{10} \alpha_3 + 664640 x_1^2 x_2 \alpha_1 \alpha_2^6 \alpha_3^6 \\
& + 3514655 x_1^2 x_2 \alpha_1^8 \alpha_2^4 \alpha_3 - 1158540 \alpha_2^5 x_1 x_2 \alpha_1^6 \alpha_3^2 - 1483200 \alpha_2^7 x_1 x_2 \alpha_1^3 \alpha_3^3 \\
& + 2123400 \alpha_2^5 x_1 x_2 \alpha_1^4 \alpha_3 + 474160 \alpha_2 x_1 x_2 \alpha_1^6 \alpha_3^6 + 95240 \alpha_2 x_1 x_2 \alpha_1^8 \alpha_3^4 \\
& - 535380 \alpha_2^{11} x_1 x_2 \alpha_1 \alpha_3 - 11948490 \alpha_2^7 x_1 x_2 \alpha_1^4 \alpha_3^2 + 9587770 \alpha_2^9 x_1 x_2 \alpha_1^3 \alpha_3 \\
& - 11520 \alpha_2 x_1 x_2 \alpha_1^9 \alpha_3^3 + 1483840 \alpha_2^7 x_1 x_2 \alpha_1^5 \alpha_3 + 131000 \alpha_2^{13} x_1 x_2^2 \\
& - 1347420 \alpha_2^7 x_1 x_2 \alpha_1^5 \alpha_3 + 34560 \alpha_2^5 x_1 x_2 \alpha_1^7 \alpha_3 - 286200 \alpha_2 x_1 x_2 \alpha_1^7 \alpha_3^5
\end{aligned}$$



$$\begin{aligned}
& -961100 \alpha_2^3 x_1 x_2^2 \alpha_1^3 \alpha_3^7 - 5044190 \alpha_2^9 x_1 x_2^2 \alpha_3^3 \alpha_1 + 197160 \alpha_2 x_1 x_2^2 \alpha_1^4 \alpha_3^8 \\
& + 1721040 \alpha_2^5 x_1 x_2^2 \alpha_3^6 \alpha_1^2 + 934560 \alpha_2^9 x_1 x_2^2 \alpha_3^2 \alpha_1^2 + 8086790 \alpha_2^7 x_1 x_2^2 \alpha_3^4 \alpha_1^2 \\
& + 2620820 \alpha_2^3 x_1 x_2^2 \alpha_1^4 \alpha_3^6 + 150760 \alpha_2^3 x_1 x_2^2 \alpha_1^7 \alpha_3^3 - 6470490 \alpha_2^5 x_1 x_2^2 \alpha_3^5 \alpha_1^3 \\
& - 440240 \alpha_2 x_1 x_2^2 \alpha_1^5 \alpha_3^7 + 5994230 \alpha_2^5 x_1 x_2^2 \alpha_1^5 \alpha_3^3 - 560620 \alpha_2^3 x_1 x_2^2 \alpha_1^6 \alpha_3^4 \\
& - 361500 \alpha_2^9 x_4^2 x_3^3 \alpha_3 + 390320 \alpha_2^9 x_1 x_2^2 \alpha_3^4 + 1247310 \alpha_2^{11} x_1 x_2^2 \alpha_3^2 \\
& - 2786690 \alpha_2^{11} x_1 x_2^2 \alpha_1^2 - 23040 \alpha_2^7 x_1 x_2^2 \alpha_1^6 - 571300 \alpha_2^9 x_1 x_2^2 \alpha_1^4 \\
& - 1644540 \alpha_2^3 x_1 x_2^2 \alpha_1^5 \alpha_3^5 - 716765 \alpha_2^4 x_2^3 \alpha_1^5 \alpha_3^4 + 115215 \alpha_2^4 x_2^3 \alpha_1^6 \alpha_3^3 \\
& - 6998155 \alpha_2^8 x_2^3 \alpha_3^2 \alpha_1^3 - 9180 \alpha_2^8 x_2^3 \alpha_1^5 - 77785 \alpha_2^9 x_1^3 \alpha_3^4 \\
& - 896570 \alpha_2^{11} x_1^3 \alpha_3^2 - 1198170 \alpha_2^{11} x_1^3 \alpha_1^2 - 4320 \alpha_2^5 x_1^3 \alpha_1^8 - 90120 \alpha_2^7 x_1^3 \alpha_1^6 \\
& - 55500 \alpha_2^4 x_2^3 \alpha_3^7 \alpha_1^2 + 63780 \alpha_2^6 x_2^3 \alpha_3^6 \alpha_1 + 5478545 \alpha_2^{10} x_2^3 \alpha_1^2 \alpha_3 \\
& + 10440 \alpha_2^6 x_2^3 \alpha_1^6 \alpha_3 + 3865275 \alpha_2^6 x_2^3 \alpha_1^4 \alpha_3^3 - 3403065 \alpha_2^8 x_2^3 \alpha_3^3 \alpha_1^2 \\
& - 7920 \alpha_2^2 x_2^3 \alpha_1^8 \alpha_3^3 + 778205 \alpha_2^8 x_2^3 \alpha_1^4 \alpha_3^4 + 2688315 \alpha_2^{10} x_2^3 \alpha_3^2 \alpha_1 \\
& + 848455 \alpha_2^8 x_2^3 \alpha_3^4 \alpha_1 + 6660 \alpha_2^4 x_2^3 \alpha_1^7 \alpha_3^2 - 93160 \alpha_2^2 x_2^3 \alpha_1^4 \alpha_3^7 \\
& - 991755 \alpha_2^6 x_2^3 \alpha_3^5 \alpha_1^2 + 502565 \alpha_2^4 x_2^3 \alpha_3^6 \alpha_1^3 + 2072625 \alpha_2^6 x_2^3 \alpha_1^3 \alpha_3^4 \\
& - 10322585 x_1^2 x_2 \alpha_1^2 \alpha_2^8 \alpha_3^3 - 6012475 x_1^2 x_2 \alpha_1^2 \alpha_2^6 \alpha_3^5 - 98150 \alpha_2^9 x_4^2 x_3 \alpha_1^3 \\
& - 50400 \alpha_2^7 x_4^2 x_3 \alpha_3^5 - 582000 \alpha_2^{11} x_4^2 x_3 \alpha_3 - 26100 \alpha_2^5 x_4^2 x_3 \alpha_1^7 \\
& - 274925 \alpha_2^7 x_4^2 x_3 \alpha_1^5 - 227100 \alpha_2^7 x_1^2 x_3 \alpha_1^6 - 10800 \alpha_2^5 x_1^2 x_3 \alpha_1^8 \\
& + 1142375 \alpha_2^4 x_4^3 \alpha_1^3 \alpha_3^5 - 2782150 \alpha_2^9 x_3^3 \alpha_1^3 + 4440875 \alpha_2^4 x_4^3 \alpha_1^5 \alpha_3^3 \\
& - 40500 \alpha_2^4 x_4^3 \alpha_1^2 \alpha_3^6 + 29700 \alpha_2^2 x_4^3 \alpha_1^3 \alpha_3^7 - 4500 \alpha_2^6 x_4^3 \alpha_3^5 \alpha_1 \\
& + 1615100 \alpha_2^9 x_3^3 \alpha_3^3 - 2700 \alpha_2^2 x_4^3 \alpha_1^9 \alpha_3 - 292075 \alpha_2^4 x_4^3 \alpha_1^6 \alpha_3^2 \\
& + 351650 \alpha_2^6 x_4^3 \alpha_1^5 \alpha_3 + 1333500 \alpha_2^2 x_4^3 \alpha_1^5 \alpha_3^5 - 10800 \alpha_2^5 x_3^3 \alpha_1^7 \\
& + 936900 \alpha_2^{10} x_4^3 \alpha_1^3 \alpha_3 - 5489325 \alpha_2^4 x_4^3 \alpha_1^4 \alpha_3^4 + 8177550 \alpha_2^6 x_4^3 \alpha_1^3 \alpha_3^3 \\
& + 190800 \alpha_2^7 x_3^3 \alpha_3^5 - 8575000 \alpha_2^{11} x_3^3 \alpha_1 + 3350000 \alpha_2^{11} x_3^3 \alpha_3 + 360 \alpha_2 x_3^3 \alpha_3^{10} \\
& - 5078625 \alpha_2^8 x_4^3 \alpha_1^2 \alpha_3^2 + 16275 \alpha_2^2 x_4^3 \alpha_1^8 \alpha_3^2 - 42450 \alpha_2^4 x_4^3 \alpha_1^7 \alpha_3 \\
& + 74500 \alpha_2^2 x_4^3 \alpha_1^7 \alpha_3^3 - 7271100 \alpha_2^6 x_4^3 \alpha_1^4 \alpha_3^2 + 5423175 \alpha_2^8 x_4^3 \alpha_1^3 \alpha_3^3 \\
& - 970375 \alpha_2^6 x_4^3 \alpha_1^2 \alpha_3^4 + 139425 \alpha_2^8 x_4^3 \alpha_1^3 \alpha_3^3 - 1048650 \alpha_2^2 x_4^3 \alpha_1^6 \alpha_3^4 \\
& - 402625 \alpha_2^2 x_4^3 \alpha_1^4 \alpha_3^6 - 309000 \alpha_2^7 x_3^3 \alpha_1^5 - 13940 \alpha_2^6 x_2 x_4^2 \alpha_3^6 \\
& + 551300 x_1^2 x_4 \alpha_1^5 \alpha_2^8 - 467675 \alpha_2^8 x_2 x_4 \alpha_1^5 - 31500 \alpha_2^6 x_2 x_4 \alpha_1^7
\end{aligned}$$

$$\begin{aligned}
& -6300 \alpha_2^8 x_2^2 x_4 \alpha_3^5 - 1031000 \alpha_2^{12} x_2^2 x_4 \alpha_1 - 146000 \alpha_2^{12} x_2^2 x_4 \alpha_3 \\
& -47300 \alpha_2^{10} x_2^2 x_4 \alpha_3^3 + 387300 x_1^2 x_4 \alpha_1^6 \alpha_3^7 - 111900 x_1^2 x_4 \alpha_1^{10} \alpha_3^3 \\
& + 104100 x_1^2 x_4 \alpha_1^9 \alpha_3^4 + 10800 x_1^2 x_4 \alpha_1^9 \alpha_2^4 + 61200 x_1^2 x_4 \alpha_2^8 \alpha_3^5 \\
& - 1023750 x_1^2 x_4 \alpha_1^3 \alpha_2^{10} + 178500 x_1^2 x_4 \alpha_1^7 \alpha_2^6 + 950000 x_1^2 x_4 \alpha_2^{12} \alpha_3 \\
& + 496700 x_1^2 x_4 \alpha_2^{10} \alpha_3^3 - 720 \alpha_2^2 x_2^3 \alpha_1^2 \alpha_3^9 + 1440 \alpha_2^4 x_2^3 \alpha_3^8 \alpha_1 \\
& + 37960 \alpha_2^7 x_1 x_2^2 \alpha_3^6 - 720 x_1^2 x_2^2 \alpha_1^2 \alpha_3^{11} ) / ( \\
& (4 \alpha_1^3 \alpha_3 - 17 \alpha_1^2 \alpha_3^2 + 4 \alpha_1 \alpha_3^3 - 4 \alpha_1^2 \alpha_2^2 + 42 \alpha_2^2 \alpha_1 \alpha_3 - 4 \alpha_3^2 \alpha_2^2 - 25 \alpha_2^4) \\
& (-\alpha_2^2 + \alpha_1 \alpha_3)^2 (9 \alpha_1^6 - 118 \alpha_1^5 \alpha_3 + 391 \alpha_1^4 \alpha_3^2 + 172 \alpha_2^2 \alpha_1^4 - 1200 \alpha_2^2 \alpha_1^3 \alpha_3 \\
& - 564 \alpha_1^3 \alpha_3^3 + 391 \alpha_1^2 \alpha_3^4 + 944 \alpha_2^4 \alpha_1^2 + 2056 \alpha_2^2 \alpha_1^2 \alpha_3^2 - 1200 \alpha_2^2 \alpha_1 \alpha_3^3 \\
& - 2912 \alpha_2^4 \alpha_1 \alpha_3 - 118 \alpha_1 \alpha_3^5 + 9 \alpha_3^6 + 1600 \alpha_2^6 + 944 \alpha_2^4 \alpha_3^2 + 172 \alpha_2^2 \alpha_3^4) )
\end{aligned}$$

## Invariants at fixed degree

```

> eval(invariantsdegree);
2
[ Choose a degree invdegree <= invariantsdegree;
> invdegree:=invariantsdegree;
invdegree := 2

```

### Invariant providing map

A map from the space of homogeneous polynomials of invdegree onto the invariant polynomials of invdegree is calculated.

```

> eval(invpoly);
[-\alpha_2^2 + \alpha_1 \alpha_3 + \tau^2 \alpha_1 + \tau^2 \alpha_3 + \tau^4, \tau(-16 \alpha_2^2 + 4 \tau^2 \alpha_1 + \tau^4 + 16 \alpha_1 \alpha_3 + 4 \tau^2 \alpha_3)
(\alpha_1^2 + 2 \tau^2 \alpha_1 + \tau^4 - 2 \alpha_1 \alpha_3 + 2 \tau^2 \alpha_3 + \alpha_3^2 + 4 \alpha_2^2)]
[ Note that the command InvariantsProvidingPolynomial(invpoly[deg],M); calculates the
invariant providing map for degree deg, if deg<invariantsdegree.
> invpolymap:=InvariantsProvidingPolynomial(invpoly[invdegree],M);
invpolymap := -16 \alpha_1^2 \alpha_2^2 + 96 \alpha_2^2 \alpha_1 \alpha_3 - 64 \alpha_2^4 - 16 \alpha_3^2 \alpha_2^2 + 16 \alpha_1^3 \alpha_3
- 32 \alpha_1^2 \alpha_3^2 + 16 \alpha_1 \alpha_3^3
+ \tau^2 (-16 \alpha_2^2 \alpha_3 - 16 \alpha_1 \alpha_2^2 + 28 \alpha_3^2 \alpha_1 + 28 \alpha_1^2 \alpha_3 + 4 \alpha_1^3 + 4 \alpha_3^3)
+ \tau^4 (-12 \alpha_2^2 + 30 \alpha_1 \alpha_3 + 9 \alpha_1^2 + 9 \alpha_3^2) + \tau^6 (6 \alpha_1 + 6 \alpha_3) + \tau^8

```

### Finding the invariants

A basis of invariants of degree 'invariantsdegree' is calculated using 'invpolymap'. If you already know the dimension of the space of invariants from some theoretical argument, set 'number' to some positive value (in order to save calculation time) and thus only do

```

'number' tries for invariants. Another call of invariants(...,eval(thistry),...) will then try
more invariants...
[ > Invarianten:={}: InvZahl:=0: firsttry:=vector(dim,0):
[ > firsttry[dim]:=invdegree:number:=-1:eval(firsttry);
                                [0,0,0,2]
[ > thistry,Invarianten,InvZahl:=invariants(invpolymap,eval(In
varianten),InvZahl,eval(firsttry),number,invdegree,dim,M);
thistry,Invarianten,InvZahl := [3,0,0,0], {8 x22 α1 α24 - 16 x42 α12 α32 + 8 x42 α1 α33
- 8 x42 α12 α22 + 8 x42 α13 α3 - 16 x22 α12 α33 - 8 x22 α33 α22 + 8 x22 α13 α32
+ 8 x22 α1 α34 - 16 x22 α12 α22 α3 + 16 x32 α22 α1 α3 + 16 α23 x4 x3 α1
- 16 α2 x4 x3 α12 α3 + 16 α2 x4 x3 α1 α32 - 16 α23 x4 x3 α3 - 8 α22 x42 α32
- 24 α24 α3 x22 - 32 α25 x1 x2 - 16 α24 x42 + 32 α22 x42 α1 α3 - 16 x32 α24
- 8 x12 α24 α1 - 8 x12 α24 α3 - 16 α23 x1 x2 α32 + 8 x12 α22 α12 α3 + 8 x12 α22 α1 α32
- 16 α2 x1 x2 α12 α32 + 16 α2 x1 x2 α1 α33 + 48 α23 x1 x2 α1 α3 + 40 α22 α32 x22 α1,
- 16 α25 x22 + 8 α23 x42 α1 + 32 x3 α22 x4 α1 α3 - 8 α23 x32 α1 + 8 α2 x32 α12 α3
- 8 α2 x32 α1 α32 - 16 α25 x12 + 16 α22 x1 x2 α1 α32 + 16 α22 x1 x2 α12 α3 - 8 α23 x12 α12
- 16 α24 x1 x2 α1 + 24 α23 x12 α1 α3 + 8 α2 x12 α13 α3 - 8 α2 x12 α12 α32
+ 24 α23 x22 α1 α3 - 32 x3 α24 x4 - 8 x22 α12 α32 α2 + 8 x22 α1 α33 α2 - 8 x22 α32 α23
- 8 x42 α12 α2 α3 + 8 x42 α1 α2 α32 + 8 α23 x32 α3 - 8 α23 x42 α3 - 16 α24 x1 α3 x2}, 2
[ If g is an invariant, and c a constant, c*g is also an invariant. So it is 'legal' to try to
simplify further calculations by eliminating parameters.
[ > Inva:=vector(InvZahl):
[ > for i from 1 to InvZahl do

      Inva[i]:=factor(polynomialsimplify(Invarianten[i],dim));
      od;

Inva1 := 4 x1 x2 α23 + 2 α22 x32 + 3 α22 x22 α3 + α1 α22 x12 + 2 α22 x42 - α22 x22 α1
+ α22 x12 α3 - 2 α2 x4 x3 α1 + 2 α2 x4 x3 α3 + 2 α2 x1 x2 α32 - 2 α2 x1 x2 α1 α3
+ x22 α12 α3 + x42 α12 + x22 α33 - 2 α32 x22 α1 + x42 α32 - 2 x42 α1 α3

Inva2 := 2 α22 x22 + 2 α22 x12 + 4 α2 x3 x4 + 2 α2 x1 x2 α3 + 2 α2 x1 x2 α1 + α1 x32 - x42 α1
- x12 α1 α3 + α12 x12 - x22 α1 α3 - x32 α3 + x42 α3 + x22 α3

```

## Reduced vector field

### Matrix from of the invariants and positive semi definit invariants

```
> A:=matrixform(4,Inva[1]);
```

$$A := \begin{bmatrix} \alpha_1 \alpha_2^2 + \alpha_2^2 \alpha_3, & 2 \alpha_2^3 + \alpha_2 \alpha_3^2 - \alpha_2 \alpha_1 \alpha_3, & 0, & 0 \\ 2 \alpha_2^3 + \alpha_2 \alpha_3^2 - \alpha_2 \alpha_1 \alpha_3, & 3 \alpha_2^2 \alpha_3 - \alpha_1 \alpha_2^2 + \alpha_1^2 \alpha_3 + \alpha_3^3 - 2 \alpha_3^2 \alpha_1, & 0, & 0 \\ 0, & 0, & 2 \alpha_2^2, & -\alpha_1 \alpha_2 + \alpha_2 \alpha_3 \\ 0, & 0, & -\alpha_1 \alpha_2 + \alpha_2 \alpha_3, & 2 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3 \end{bmatrix}$$

> B:=matrixform(4,Inva[2]);

$$B := \begin{bmatrix} 2 \alpha_2^2 - \alpha_1 \alpha_3 + \alpha_1^2 & \alpha_2 \alpha_3 + \alpha_1 \alpha_2 & 0 & 0 \\ \alpha_2 \alpha_3 + \alpha_1 \alpha_2 & 2 \alpha_2^2 - \alpha_1 \alpha_3 + \alpha_3^2 & 0 & 0 \\ 0 & 0 & \alpha_1 - \alpha_3 & 2 \alpha_2 \\ 0 & 0 & 2 \alpha_2 & -\alpha_1 + \alpha_3 \end{bmatrix}$$

> if A[3,4]=0 then A1:=A; else

A1:=simplify(matadd(B,scalarmul(A,-B[3,4]/A[3,4])));

C:=eval(A):A:=eval(B);B:=eval(C);

fi;

$$A1 := \begin{bmatrix} \frac{\alpha_1(-2 \alpha_1 \alpha_3 + \alpha_3^2 + \alpha_1^2 + 4 \alpha_2^2)}{\alpha_1 - \alpha_3}, & \frac{\alpha_2(-2 \alpha_1 \alpha_3 + \alpha_3^2 + \alpha_1^2 + 4 \alpha_2^2)}{\alpha_1 - \alpha_3}, & 0, & 0 \\ \frac{\alpha_2(-2 \alpha_1 \alpha_3 + \alpha_3^2 + \alpha_1^2 + 4 \alpha_2^2)}{\alpha_1 - \alpha_3}, & \frac{\alpha_3(-2 \alpha_1 \alpha_3 + \alpha_3^2 + \alpha_1^2 + 4 \alpha_2^2)}{\alpha_1 - \alpha_3}, & 0, & 0 \\ 0, & 0, & \frac{-2 \alpha_1 \alpha_3 + \alpha_3^2 + \alpha_1^2 + 4 \alpha_2^2}{\alpha_1 - \alpha_3}, & 0 \\ 0, & 0, & 0, & \frac{-2 \alpha_1 \alpha_3 + \alpha_3^2 + \alpha_1^2 + 4 \alpha_2^2}{\alpha_1 - \alpha_3} \end{bmatrix}$$

$$C := \begin{bmatrix} \alpha_1 \alpha_2^2 + \alpha_2^2 \alpha_3, & 2 \alpha_2^3 + \alpha_2 \alpha_3^2 - \alpha_2 \alpha_1 \alpha_3, & 0, & 0 \\ 2 \alpha_2^3 + \alpha_2 \alpha_3^2 - \alpha_2 \alpha_1 \alpha_3, & 3 \alpha_2^2 \alpha_3 - \alpha_1 \alpha_2^2 + \alpha_1^2 \alpha_3 + \alpha_3^3 - 2 \alpha_3^2 \alpha_1, & 0, & 0 \\ 0, & 0, & 2 \alpha_2^2, & -\alpha_1 \alpha_2 + \alpha_2 \alpha_3 \\ 0, & 0, & -\alpha_1 \alpha_2 + \alpha_2 \alpha_3, & 2 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3 \end{bmatrix}$$

$$A := \begin{bmatrix} 2\alpha_2^2 - \alpha_1\alpha_3 + \alpha_1^2 & \alpha_2\alpha_3 + \alpha_1\alpha_2 & 0 & 0 \\ \alpha_2\alpha_3 + \alpha_1\alpha_2 & 2\alpha_2^2 - \alpha_1\alpha_3 + \alpha_3^2 & 0 & 0 \\ 0 & 0 & \alpha_1 - \alpha_3 & 2\alpha_2 \\ 0 & 0 & 2\alpha_2 & -\alpha_1 + \alpha_3 \end{bmatrix}$$

$$B := \begin{bmatrix} \alpha_1\alpha_2^2 + \alpha_2^2\alpha_3, & 2\alpha_2^3 + \alpha_2\alpha_3^2 - \alpha_2\alpha_1\alpha_3, & 0, & 0 \\ 2\alpha_2^3 + \alpha_2\alpha_3^2 - \alpha_2\alpha_1\alpha_3, & 3\alpha_2^2\alpha_3 - \alpha_1\alpha_2^2 + \alpha_1^2\alpha_3 + \alpha_3^3 - 2\alpha_3^2\alpha_1, & 0, & 0 \\ 0, & 0, & 2\alpha_2^2, & -\alpha_1\alpha_2 + \alpha_2\alpha_3 \\ 0, & 0, & -\alpha_1\alpha_2 + \alpha_2\alpha_3, & 2\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3 \end{bmatrix}$$

> A1:=matrixSimplify(A1); #this produces A1new=c\*A1old with c a real (komplex) polynomial in alpha[i]

$$A1 := \begin{bmatrix} \alpha_1 & \alpha_2 & 0 & 0 \\ \alpha_2 & \alpha_3 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

> if A1[4,4]<0 then A1:= scalarMul(A1,-1);fi;

> unassign('delta');delta:=[solve((B[3,3]+delta\*A1[3,3])\*(B[4,4]+delta\*A1[4,4])-(B[3,4]\*B[4,3])=0,delta)];

$$\delta := \begin{bmatrix} -2\alpha_2^2 - \frac{1}{2}\alpha_1^2 - \frac{1}{2}\alpha_3^2 + \alpha_1\alpha_3 \\ + \frac{1}{2}\sqrt{\alpha_1^4 - 4\alpha_1^3\alpha_3 + 4\alpha_1^2\alpha_2^2 + 6\alpha_1^2\alpha_3^2 - 4\alpha_1\alpha_3^3 - 8\alpha_2^2\alpha_1\alpha_3 + 4\alpha_3^2\alpha_2^2 + \alpha_3^4} \\ -2\alpha_2^2 - \frac{1}{2}\alpha_1^2 - \frac{1}{2}\alpha_3^2 + \alpha_1\alpha_3 \\ - \frac{1}{2}\sqrt{\alpha_1^4 - 4\alpha_1^3\alpha_3 + 4\alpha_1^2\alpha_2^2 + 6\alpha_1^2\alpha_3^2 - 4\alpha_1\alpha_3^3 - 8\alpha_2^2\alpha_1\alpha_3 + 4\alpha_3^2\alpha_2^2 + \alpha_3^4} \end{bmatrix}$$

> A2:=simplify(matAdd(B,scalarMul(A1,delta[1])));B2:=simplify(matAdd(B,scalarMul(A1,delta[2])));

A2:=

$$\begin{bmatrix} -\alpha_1\alpha_2^2 + \alpha_2^2\alpha_3 - \frac{1}{2}\alpha_1^3 - \frac{1}{2}\alpha_3^2\alpha_1 + \alpha_1^2\alpha_3 \\ + \frac{1}{2}\alpha_1\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2}, \\ \frac{1}{2}\alpha_2\alpha_3^2 - \frac{1}{2}\alpha_1^2\alpha_2 + \frac{1}{2}\alpha_2\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2}, 0, 0 \end{bmatrix}$$

$$\left[ \begin{aligned} & \left[ \frac{1}{2} \alpha_2 \alpha_3^2 - \frac{1}{2} \alpha_1^2 \alpha_2 + \frac{1}{2} \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}, \alpha_2^2 \alpha_3 - \alpha_1 \alpha_2^2 \right. \\ & \left. + \frac{1}{2} \alpha_1^2 \alpha_3 + \frac{1}{2} \alpha_3^3 - \alpha_3^2 \alpha_1 + \frac{1}{2} \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}, 0, 0 \right] \\ & \left[ 0, 0, -\frac{1}{2} \alpha_1^2 - \frac{1}{2} \alpha_3^2 + \alpha_1 \alpha_3 + \frac{1}{2} \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}, \right. \\ & \left. -\alpha_1 \alpha_2 + \alpha_2 \alpha_3 \right] \\ & \left[ 0, 0, -\alpha_1 \alpha_2 + \alpha_2 \alpha_3, \right. \\ & \left. \frac{1}{2} \alpha_1^2 + \frac{1}{2} \alpha_3^2 - \alpha_1 \alpha_3 + \frac{1}{2} \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \right] \end{aligned} \right]$$

B2 :=

$$\left[ \begin{aligned} & \left[ -\alpha_1 \alpha_2^2 + \alpha_2^2 \alpha_3 - \frac{1}{2} \alpha_1^3 - \frac{1}{2} \alpha_3^2 \alpha_1 + \alpha_1^2 \alpha_3 \right. \\ & \left. - \frac{1}{2} \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}, \right. \\ & \left. \frac{1}{2} \alpha_2 \alpha_3^2 - \frac{1}{2} \alpha_1^2 \alpha_2 - \frac{1}{2} \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}, 0, 0 \right] \\ & \left[ \frac{1}{2} \alpha_2 \alpha_3^2 - \frac{1}{2} \alpha_1^2 \alpha_2 - \frac{1}{2} \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}, \alpha_2^2 \alpha_3 - \alpha_1 \alpha_2^2 \right. \\ & \left. + \frac{1}{2} \alpha_1^2 \alpha_3 + \frac{1}{2} \alpha_3^3 - \alpha_3^2 \alpha_1 - \frac{1}{2} \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}, 0, 0 \right] \\ & \left[ 0, 0, -\frac{1}{2} \alpha_1^2 - \frac{1}{2} \alpha_3^2 + \alpha_1 \alpha_3 - \frac{1}{2} \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}, \right. \\ & \left. -\alpha_1 \alpha_2 + \alpha_2 \alpha_3 \right] \\ & \left[ 0, 0, -\alpha_1 \alpha_2 + \alpha_2 \alpha_3, \right. \\ & \left. \frac{1}{2} \alpha_1^2 + \frac{1}{2} \alpha_3^2 - \alpha_1 \alpha_3 - \frac{1}{2} \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \right] \end{aligned} \right]$$

> A3:=vecor(2):B3:=vector(2):

for k from 0 to 1 do

    A3[k+1]:=matrix(2,2): B3[k+1]:=matrix(2,2):

    for i from 1 to 2 do

        for j from 1 to 2 do

            A3[k+1][i,j]:=simplify(A2[i+2\*k,j+2\*k]);

    B3[k+1][i,j]:=simplify(factor(B2[i+2\*k,j+2\*k]));

        od;

    od;

od:

[ Check for semi-simple definite matrices

> factor(simplify(det(A3[1])));factor(simplify(det(A3[2])));

```
factor(simplify(det(B3[1])));factor(simplify(det(B3[2])));
```

```
0
0
0
0
```

[ So all submatrices in question are singular.

```
> factor(expand((trace(A3[1]))));factor(expand((trace(A3[2]))));
```

$$\begin{aligned}
 & -2\alpha_1\alpha_2^2 + 2\alpha_2^2\alpha_3 - \frac{1}{2}\alpha_1^3 - \frac{3}{2}\alpha_3^2\alpha_1 + \frac{3}{2}\alpha_1^2\alpha_3 \\
 & + \frac{1}{2}\alpha_1\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} + \frac{1}{2}\alpha_3^3 \\
 & + \frac{1}{2}\alpha_3\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \\
 & \qquad \qquad \qquad \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2}
 \end{aligned}$$

```
> factor(expand((trace(B3[1]))));factor(expand((trace(B3[2]))));
```

$$\begin{aligned}
 & -2\alpha_1\alpha_2^2 + 2\alpha_2^2\alpha_3 - \frac{1}{2}\alpha_1^3 - \frac{3}{2}\alpha_3^2\alpha_1 + \frac{3}{2}\alpha_1^2\alpha_3 \\
 & - \frac{1}{2}\alpha_1\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} + \frac{1}{2}\alpha_3^3 \\
 & - \frac{1}{2}\alpha_3\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \\
 & \qquad \qquad \qquad -\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2}
 \end{aligned}$$

[ Now we know that A2 and -B2 are positive semi definit. (The theory for this case guarantees two independent positive semi definit invariants.)

[ >

```
> Inval:=multiply(transpose(x),A2,x);
```

$$\begin{aligned}
 Inval := & \left( x_1 \left( -\alpha_1\alpha_2^2 + \alpha_2^2\alpha_3 - \frac{1}{2}\alpha_1^3 - \frac{1}{2}\alpha_3^2\alpha_1 + \alpha_1^2\alpha_3 \right. \right. \\
 & \left. \left. + \frac{1}{2}\alpha_1\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \right) \right) \\
 & + x_2 \left( \frac{1}{2}\alpha_2\alpha_3^2 - \frac{1}{2}\alpha_1^2\alpha_2 + \frac{1}{2}\alpha_2\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \right) x_1 + \left( \right. \\
 & \left. x_1 \left( \frac{1}{2}\alpha_2\alpha_3^2 - \frac{1}{2}\alpha_1^2\alpha_2 + \frac{1}{2}\alpha_2\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \right) + x_2 \left( \right. \right. \\
 & \left. \left. \alpha_2^2\alpha_3 - \alpha_1\alpha_2^2 + \frac{1}{2}\alpha_1^2\alpha_3 + \frac{1}{2}\alpha_3^3 - \alpha_3^2\alpha_1 + \frac{1}{2}\alpha_3\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \right) \right) \\
 & \left. \right) x_2 + \left( x_3 \left( -\frac{1}{2}\alpha_1^2 - \frac{1}{2}\alpha_3^2 + \alpha_1\alpha_3 + \frac{1}{2}\sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \right) \right) \\
 & + x_4 \left( -\alpha_1\alpha_2 + \alpha_2\alpha_3 \right) x_3 + \left( x_3 \left( -\alpha_1\alpha_2 + \alpha_2\alpha_3 \right) \right)
 \end{aligned}$$

$$+x_4 \left( \frac{1}{2} \alpha_1^2 + \frac{1}{2} \alpha_3^2 - \alpha_1 \alpha_3 + \frac{1}{2} \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \right) x_4$$

> Inva2:=multiply(transpose(x),-B2,x);

$$\text{Inva2} := \left( x_1 \left( \right. \right.$$

$$\alpha_1 \alpha_2^2 - \alpha_2^2 \alpha_3 + \frac{1}{2} \alpha_1^3 + \frac{1}{2} \alpha_3^2 \alpha_1 - \alpha_1^2 \alpha_3 + \frac{1}{2} \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}$$

$$\left. \right) + x_2 \left( -\frac{1}{2} \alpha_2 \alpha_3^2 + \frac{1}{2} \alpha_1^2 \alpha_2 + \frac{1}{2} \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \right) x_1 + \left( \right.$$

$$x_1 \left( -\frac{1}{2} \alpha_2 \alpha_3^2 + \frac{1}{2} \alpha_1^2 \alpha_2 + \frac{1}{2} \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \right) + x_2 \left( -\alpha_2^2 \alpha_3 \right.$$

$$+ \alpha_1 \alpha_2^2 - \frac{1}{2} \alpha_1^2 \alpha_3 - \frac{1}{2} \alpha_3^3 + \alpha_3^2 \alpha_1 + \frac{1}{2} \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \left. \right) x_2$$

$$+ \left( \right.$$

$$x_3 \left( \frac{1}{2} \alpha_1^2 + \frac{1}{2} \alpha_3^2 - \alpha_1 \alpha_3 + \frac{1}{2} \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \right) + x_4 (\alpha_1 \alpha_2 - \alpha_2 \alpha_3)$$

$$\left. \right) x_3 + \left( x_3 (\alpha_1 \alpha_2 - \alpha_2 \alpha_3) \right.$$

$$+ x_4 \left( -\frac{1}{2} \alpha_1^2 - \frac{1}{2} \alpha_3^2 + \alpha_1 \alpha_3 + \frac{1}{2} \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \right) x_4$$

[ > Inva3:=simplify(lieableitung(f[3],Inva1)):

[ > Inva4:=simplify(lieableitung(f[3],Inva2)):

[ > pbasis:=vector([eval(Inva1^2),eval(Inva1\*Inva2),eval(Inva2^2)]):

[ > LK3:=LinearCoefficients(pbasis,Inva3,dim);

$$\text{LK3} := \left[ -5 \alpha_2^2 \beta^2 (-259200 \alpha_1^{10} \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \right.$$

$$+ 12779200 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^8 \alpha_3^2$$

$$+ 12779200 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^8 \alpha_1^2 - 10599336 \alpha_1 \alpha_3^4 \alpha_2^5$$

$$- 2476656 \alpha_1 \alpha_3^6 \alpha_2^3 - 11769948 \alpha_1^2 \alpha_3^4 \alpha_2^4 + 4927068 \alpha_1 \alpha_3^5 \alpha_2^4$$

$$+ 7936704 \alpha_1^2 \alpha_3^5 \alpha_2^3 + 684288 \alpha_1^2 \alpha_3^7 \alpha_2 - 11022480 \alpha_1 \alpha_3^2 \alpha_2^7$$

$$- 25558400 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^8 \alpha_1 \alpha_3$$

$$- 656640 \alpha_1^9 \alpha_3 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 13574952 \alpha_1^3 \alpha_3^3 \alpha_2^4$$

$$+ 2344464 \alpha_1^3 \alpha_3 \alpha_2^6 + 6481620 \alpha_1^5 \alpha_2^2 \alpha_3^3 + 6233760 \alpha_1^3 \alpha_3^5 \alpha_2^2 + 2182140 \alpha_1^5 \alpha_2^4 \alpha_3$$

$$- 6823440 \alpha_1^2 \alpha_3^2 \alpha_2^6 - 9139200 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^9 \alpha_1 \alpha_3$$

$$+ 11022480 \alpha_1^2 \alpha_2^7 \alpha_3 - 2897856 \alpha_1^2 \alpha_3^6 \alpha_2^2 + 21408624 \alpha_1^2 \alpha_3^3 \alpha_2^5$$



$$\begin{aligned}
& -8118468 \alpha_1^4 \alpha_2^2 \alpha_3^4 - 7945128 \alpha_1^4 \alpha_3^2 \alpha_2^4 \\
& + 656640 \alpha_1^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 + 629208 \alpha_1^7 \alpha_3 \alpha_2^2 \\
& - 2964600 \alpha_1^6 \alpha_3^2 \alpha_2^2 - 76376736 \alpha_1^8 \alpha_3^2 \alpha_2^3 + 6753456 \alpha_1^3 \alpha_3^6 + 729972 \alpha_1 \alpha_3^7 \alpha_2^2 \\
& + 12409200 \alpha_1^{10} \alpha_3^3 + 8245800 \alpha_1^4 \alpha_3^3 \alpha_2^3 + 6977664 \alpha_1^4 \alpha_3 \alpha_2^5 \\
& - 287280 \alpha_1^7 \alpha_2 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 1677438 \alpha_1^6 \alpha_2^2 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 5579280 \alpha_1^4 \alpha_2 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 10614195 \alpha_1^5 \alpha_2^2 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 19415106 \alpha_1^4 \alpha_2^3 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 6329187 \alpha_1^2 \alpha_2^2 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 288 \alpha_3^{11} \alpha_1^2 \\
& + 1269756 \alpha_1^5 \alpha_3^5 - 19315840 \alpha_1^6 \alpha_2 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 7076160 \alpha_1^7 \alpha_2 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 98820 \alpha_1^2 \alpha_3^8 \\
& - 4840452 \alpha_1^5 \alpha_2^3 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 29411448 \alpha_1^7 \alpha_3^5 \\
& + 17707527 \alpha_1^3 \alpha_2^2 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1681722 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2 - 3826881 \alpha_1^5 \alpha_3^6 \\
& - 41226192 \alpha_1^7 \alpha_3^6 - 629208 \alpha_1^5 \alpha_2^5 - 28760130 \alpha_1^6 \alpha_2 \alpha_3^4 \\
& - 4217724 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2 \\
& - 50513664 \alpha_1^5 \alpha_2^2 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 4992640 \alpha_1^3 \alpha_2 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 15944064 \alpha_1^6 \alpha_2^3 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 37209208 \alpha_1^5 \alpha_2^4 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 56743264 \alpha_1^3 \alpha_2^3 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 25768456 \alpha_1^6 \alpha_2^2 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 16330560 \alpha_1^4 \alpha_2 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 60276256 \alpha_1^5 \alpha_2^3 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 19219984 \alpha_1^3 \alpha_2^2 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}
\end{aligned}$$

$$\begin{aligned}
& -317403200 \alpha_1^3 \alpha_3^2 \alpha_2^7 - 1353672 \alpha_1^3 \alpha_3^6 \alpha_2 \\
& + 17963232 \alpha_1^2 \alpha_2^5 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 388089928 \alpha_1^4 \alpha_3^2 \alpha_2^6 + 17711616 \alpha_1^6 \alpha_2 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 13953600 \alpha_1^7 \alpha_2 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 18994176 \alpha_1^3 \alpha_3^2 \alpha_2^5 \\
& - 64152192 \alpha_1^5 \alpha_2^3 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 42494208 \alpha_1^5 \alpha_2^5 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 11749536 \alpha_1^3 \alpha_3^4 \alpha_2^3 \\
& - 183094328 \alpha_1^2 \alpha_2^6 \alpha_3^4 - 816804 \alpha_1^4 \alpha_3^6 \\
& + 43466304 \alpha_1^4 \alpha_2^3 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 3674160 \alpha_1^3 \alpha_2^7 \\
& + 81775104 \alpha_1^4 \alpha_2^5 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 33923840 \alpha_1^8 \alpha_2 \alpha_3^3 \\
& + 119289680 \alpha_1^7 \alpha_2^2 \alpha_3^3 + 174639648 \alpha_1^4 \alpha_2^7 \alpha_3 + 165753632 \alpha_1^5 \alpha_2^6 \alpha_3 \\
& + 398592512 \alpha_1^3 \alpha_3^3 \alpha_2^6 - 19615936 \alpha_1 \alpha_3^6 \alpha_2^5 + 484100800 \alpha_1^4 \alpha_3^3 \alpha_2^5 \\
& + 4200344 \alpha_1 \alpha_3^7 \alpha_2^4 - 357640256 \alpha_1^3 \alpha_3^4 \alpha_2^5 - 425768456 \alpha_1^4 \alpha_3^4 \alpha_2^4 \\
& + 30674656 \alpha_1 \alpha_3^5 \alpha_2^6 - 128189412 \alpha_1^4 \alpha_3^4 \alpha_2^3 - 146061189 \alpha_1^3 \alpha_3^4 \alpha_2^4 \\
& + 150105087 \alpha_1^4 \alpha_3^3 \alpha_2^4 \\
& - 14011488 \alpha_1^2 \alpha_2^3 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 14739219 \alpha_1 \alpha_3^6 \alpha_2^4 \\
& + 157996872 \alpha_1^3 \alpha_3^3 \alpha_2^5 - 91884576 \alpha_1 \alpha_2^7 \alpha_3^4 + 125686400 \alpha_1^3 \alpha_2^8 \alpha_3 \\
& + 23498880 \alpha_1^4 \alpha_3^7 \alpha_2 + 31827312 \alpha_1^3 \alpha_3^7 \alpha_2^2 + 82089180 \alpha_1^3 \alpha_3^5 \alpha_2^3 \\
& - 21131847 \alpha_1^4 \alpha_2^2 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1327158 \alpha_1^2 \alpha_2 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 34992 \alpha_1^4 \alpha_2^6 \\
& - 974682 \alpha_1 \alpha_3^8 \alpha_2^2 - 5005440 \alpha_1^3 \alpha_3^8 \alpha_2 + 49845276 \alpha_1^4 \alpha_3^5 \alpha_2^2 - 57098560 \alpha_1^5 \alpha_2 \alpha_3^6 \\
& + 189759376 \alpha_1^5 \alpha_3^5 \alpha_2^2 + 80625600 \alpha_1^6 \alpha_3^5 \alpha_2 \\
& - 17948871 \alpha_1^2 \alpha_2^6 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 53595792 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^2 \\
& - 31181360 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3 \alpha_2^4 \\
& - 24127848 \alpha_1 \alpha_3^3 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 8545437 \alpha_1 \alpha_3^4 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 43911072 \alpha_1^2 \alpha_3^2 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}
\end{aligned}$$

$$\begin{aligned}
& + 75026080 \alpha_1^3 \alpha_2^6 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 13846059 \alpha_1 \alpha_3^2 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 53200208 \alpha_1^4 \alpha_2^6 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 11253312 \alpha_1 \alpha_3^4 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 64950528 \alpha_1^2 \alpha_3^3 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 35568608 \alpha_1 \alpha_3^3 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 63384032 \alpha_1^3 \alpha_2^6 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 42372256 \alpha_1^2 \alpha_2^7 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 38302624 \alpha_1^2 \alpha_2^6 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 3939516 \alpha_1^3 \alpha_2 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 69929307 \alpha_1^4 \alpha_2^6 \alpha_3 \\
& + 50622192 \alpha_1^3 \alpha_2^7 \alpha_3 - 128224458 \alpha_1^4 \alpha_3^2 \alpha_2^5 \\
& - 29355264 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^2 \alpha_3^3 \\
& - 177440128 \alpha_1^3 \alpha_3^2 \alpha_2^8 + 2495421 \alpha_1^4 \alpha_3^7 \\
& - 16453251 \alpha_1^4 \alpha_2^4 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 164202462 \alpha_1^3 \alpha_3^2 \alpha_2^6 \\
& + 23993820 \alpha_1 \alpha_3^5 \alpha_2^5 + 17821674 \alpha_1^2 \alpha_2^3 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 92954576 \alpha_1^4 \alpha_2^4 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 3822228 \alpha_1 \alpha_3^7 \alpha_2^3 \\
& - 26288640 \alpha_1^4 \alpha_2^2 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 8196741 \alpha_1^2 \alpha_2^2 \alpha_3^7 \\
& + 70892487 \alpha_1^2 \alpha_2^4 \alpha_3^5 - 77652585 \alpha_1^5 \alpha_2^4 \alpha_3^2 + 45288828 \alpha_1^5 \alpha_2^5 \alpha_3 \\
& - 27898893 \alpha_1^3 \alpha_2^2 \alpha_3^6 + 17918253 \alpha_1^6 \alpha_2^4 \alpha_3 - 265884768 \alpha_1^4 \alpha_2^7 \alpha_3^2 \\
& + 30807117 \alpha_1^6 \alpha_2^2 \alpha_3^3 + 106362396 \alpha_1^5 \alpha_2^3 \alpha_3^3 + 656640 \alpha_1^{11} \alpha_3 \alpha_2 \\
& - 5010200 \alpha_1 \alpha_3^5 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 66003075 \alpha_1 \alpha_2^6 \alpha_3^4 \\
& - 6045000 \alpha_1^4 \alpha_3^8 - 25443072 \alpha_1^3 \alpha_2^5 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 6484320 \alpha_1^{10} \alpha_3^2 \alpha_2 - 61029312 \alpha_1^4 \alpha_2^5 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 93175680 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^4 \\
& + 52849184 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2^2 \\
& + 82862400 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2^4
\end{aligned}$$

$$\begin{aligned}
& + 46611568 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2^4 \\
& + 38298520 \alpha_1^2 \alpha_2^4 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 8163920 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \\
& - 297408 \alpha_1^3 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 3435720 \alpha_1^2 \alpha_3^6 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 787840 \alpha_1 \alpha_3^6 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 12141120 \alpha_1^3 \alpha_2^3 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 24980800 \alpha_1^5 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 + 228938944 \alpha_1^4 \alpha_3^5 \alpha_2^3 \\
& - 28998972 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^3 \alpha_3^3 \\
& - 171072 \alpha_1^9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3 \\
& - 11269632 \alpha_1^5 \alpha_2^5 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 1153440 \alpha_1^4 \alpha_3^5 \alpha_2 \\
& + 1296 \alpha_3^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 1009280 \alpha_1 \alpha_3^8 \alpha_2^3 \\
& + 217909400 \alpha_1^3 \alpha_3^5 \alpha_2^4 + 7731396 \alpha_1^7 \alpha_3^3 \alpha_2^3 - 105550600 \alpha_1^4 \alpha_2^2 \alpha_3^6 \\
& + 255035936 \alpha_1^6 \alpha_2^3 \alpha_3^3 + 3299040 \alpha_1^4 \alpha_2 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 348948 \alpha_1^3 \alpha_3^7 + 42640224 \alpha_1^6 \alpha_2^3 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 16401976 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^4 - 51284268 \alpha_1^5 \alpha_2^2 \alpha_3^4 \\
& - 5540832 \alpha_1^8 \alpha_2^2 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 207473840 \alpha_1^6 \alpha_2^2 \alpha_3^5 \\
& - 121310128 \alpha_1^5 \alpha_2^2 \alpha_3^6 + 394521616 \alpha_1^4 \alpha_2^6 \alpha_3^3 - 330200944 \alpha_1^5 \alpha_2^6 \alpha_3^2 \\
& + 388991472 \alpha_1^6 \alpha_2^4 \alpha_3^3 - 410961776 \alpha_1^5 \alpha_2^4 \alpha_3^4 \\
& + 80056400 \alpha_1^2 \alpha_3^2 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 24537824 \alpha_1 \alpha_3^2 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 88750368 \alpha_1^4 \alpha_2^3 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 160448 \alpha_1 \alpha_3^9 \alpha_2^2 \\
& + 45407152 \alpha_1^4 \alpha_2^2 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 88161056 \alpha_1^3 \alpha_3^6 \alpha_2^3 \\
& - 92483952 \alpha_1^3 \alpha_2^4 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 21040032 \alpha_1^2 \alpha_3^6 \alpha_2^5 \\
& - 78746208 \alpha_1^4 \alpha_3^6 \alpha_2^3 + 16015104 \alpha_1^3 \alpha_3^7 \alpha_2^3 \\
& + 907872 \alpha_1^2 \alpha_2^3 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 89901408 \alpha_1^2 \alpha_3^4 \alpha_2^7
\end{aligned}$$

$$\begin{aligned}
& + 235815552 \alpha_1^3 \alpha_3^3 \alpha_2^7 - 312213600 \alpha_1^4 \alpha_3^4 \alpha_2^5 + 126110016 \alpha_1^3 \alpha_3^5 \alpha_2^5 \\
& - 4416 \alpha_1^2 \alpha_2 \alpha_3^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 69478960 \alpha_1^2 \alpha_3^5 \alpha_2^6 \\
& - 238400464 \alpha_1^3 \alpha_3^4 \alpha_2^6 + 239407376 \alpha_1^4 \alpha_3^5 \alpha_2^4 \\
& - 415376 \alpha_1^2 \alpha_2^2 \alpha_3^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 10161360 \alpha_1^2 \alpha_3^7 \alpha_2^4 \\
& - 73161648 \alpha_1^3 \alpha_3^6 \alpha_2^4 + 40247248 \alpha_1^4 \alpha_3^7 \alpha_2^2 - 6591536 \alpha_1^3 \alpha_3^8 \alpha_2^2 \\
& - 1284012 \alpha_1^6 \alpha_3^4 - 50825184 \alpha_1^8 \alpha_2 \alpha_3^4 \\
& - 8680624 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2^4 \\
& - 898560 \alpha_1^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3 \alpha_2 \\
& - 288 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^9 - 4313898 \alpha_1^6 \alpha_2^5 \\
& + 39086400 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^2 \alpha_3^2 \\
& + 262233152 \alpha_1^2 \alpha_2^7 \alpha_3^3 - 134856960 \alpha_1^2 \alpha_2^8 \alpha_3^2 \\
& + 18468 \alpha_3^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 + 123436416 \alpha_1^2 \alpha_3^3 \alpha_2^8 \\
& + 5955312 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \alpha_1^3 \alpha_2^2 \\
& + 322400 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \alpha_1 \alpha_2^4 \\
& + 106141824 \alpha_1^3 \alpha_2^5 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 10245690 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^7 \alpha_1^2 - 251144160 \alpha_1^6 \alpha_3^4 \alpha_2^3 \\
& + 388397952 \alpha_1^5 \alpha_3^3 \alpha_2^5 - 250685280 \alpha_1^6 \alpha_3^2 \alpha_2^5 + 188832384 \alpha_1^7 \alpha_3^3 \alpha_2^3 \\
& + 54122880 \alpha_1 \alpha_3^3 \alpha_2^8 + 1837080 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2^6 \\
& - 8832 \alpha_3^7 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \\
& - 576 \alpha_3^8 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 - 14704686 \alpha_1^4 \alpha_2^7 \\
& + 798282 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \alpha_2^2 \\
& - 143640 \alpha_3^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \alpha_2 \\
& - 3247749 \alpha_2^6 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 12172032 \alpha_2^8 \alpha_3^2 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 13690752 \alpha_2^7 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \\
& - 1311360 \alpha_2^5 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1
\end{aligned}$$

$$\begin{aligned}
& +4562640 \alpha_2^6 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \\
& +700896 \alpha_2^7 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 130455184 \alpha_1^6 \alpha_2^6 \alpha_3 \\
& -62143872 \alpha_1^3 \alpha_2^5 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -4867056 \alpha_1^7 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3 - 29904048 \alpha_1^9 \alpha_3^4 \\
& -198446224 \alpha_1^7 \alpha_3^2 \alpha_2^4 + 127782000 \alpha_1^8 \alpha_3^3 \alpha_2^2 - 211562896 \alpha_1^7 \alpha_3^4 \alpha_2^2 \\
& -31752 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 + 34229088 \alpha_1^3 \alpha_3^7 \alpha_2^7 \\
& -323756480 \alpha_1^5 \alpha_2^3 \alpha_3^4 - 103032 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \\
& -40367040 \alpha_1^4 \alpha_2^8 + 87804 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \\
& +1837080 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^6 \\
& +47628 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \\
& +691416 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2^4 + 161584974 \alpha_1^2 \alpha_2^6 \alpha_3^3 \\
& -92823678 \alpha_1^2 \alpha_2^5 \alpha_3^4 - 26835894 \alpha_1^2 \alpha_2^3 \alpha_3^6 + 8211320 \alpha_1^9 \alpha_3^3 - 1904742 \alpha_1^2 \alpha_3^8 \alpha_2 \\
& -44548974 \alpha_1^6 \alpha_3^2 \alpha_2^3 - 2569779 \alpha_1^7 \alpha_3^4 + 1127511 \alpha_1^8 \alpha_3^3 + 135111360 \alpha_1^5 \alpha_2^7 \alpha_3 \\
& -1053216 \alpha_1^2 \alpha_3^8 \alpha_2^3 + 614400 \alpha_1 \alpha_3^7 \alpha_2^5 + 362800 \alpha_1^2 \alpha_3^9 \alpha_2^2 - 38816408 \alpha_1^8 \alpha_3^2 \alpha_2^2 \\
& -8855343 \alpha_1^5 \alpha_2^6 - 8873280 \alpha_1^9 \alpha_3^2 \alpha_2 + 143640 \alpha_1 \alpha_3^9 \alpha_2 + 17172 \alpha_1 \alpha_3^9 \\
& -3417498 \alpha_1^8 \alpha_3^2 \alpha_2 + 5551344 \alpha_1^9 \alpha_3 \alpha_2^2 - 197721144 \alpha_1^6 \alpha_2^2 \alpha_3^4 - 17915504 \alpha_1^7 \alpha_2^6 \\
& +1517598 \alpha_1^8 \alpha_3 \alpha_2^2 - 29886912 \alpha_1^5 \alpha_2^8 + 107970368 \alpha_1^6 \alpha_3 \alpha_2^5 - 1296 \alpha_3^{10} \\
& +53383752 \alpha_1^7 \alpha_3 \alpha_2^4 + 10245690 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^7 \alpha_3^2 \\
& -36936 \alpha_1^9 \alpha_2^2 - 233397 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^7 \\
& +226800 \alpha_1^4 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& +990144 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2 \\
& +2480544 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \alpha_3^2 \\
& -1453140 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_3^3 \\
& -1154736 \alpha_1^2 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^5 \\
& -4961224 \alpha_1^7 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 8160848 \alpha_1 \alpha_3^6 \alpha_2^6 \\
& -36953280 \alpha_1 \alpha_3^4 \alpha_2^8 + 3710872 \alpha_1^4 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}
\end{aligned}$$

$$\begin{aligned}
& -224806040 \alpha_1^6 \alpha_3^2 \alpha_2^4 + 2499858 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \\
& - 36936 \alpha_1^8 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 106108064 \alpha_1^7 \alpha_3^2 \alpha_2^3 \\
& + 12507552 \alpha_1^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \\
& - 7549200 \alpha_1^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \\
& + 3158730 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^4 \\
& + 1247103 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^5 \\
& + 287280 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^6 - 881280 \alpha_1^6 \alpha_2 \alpha_3^3 \\
& - 39904128 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^3 \alpha_3 \\
& - 2198322 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \\
& + 430335 \alpha_1^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 + 68040 \alpha_1^5 \alpha_3^4 \alpha_2 \\
& + 4569600 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^9 \alpha_3^2 \\
& - 1511505 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 - 2186352 \alpha_1^5 \alpha_2^3 \alpha_3^2 \\
& + 1031499 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 + 9678528 \alpha_1 \alpha_3^5 \alpha_2^7 \\
& + 12960 \alpha_2 \alpha_3^9 + 19538304 \alpha_1^8 \alpha_3 \alpha_2^3 + 614952 \alpha_1^7 \alpha_3^2 \alpha_2 + 393920 \alpha_1^2 \alpha_3^9 \alpha_2 \\
& - 1860408 \alpha_1^{10} \alpha_3^2 - 10190421 \alpha_1^7 \alpha_3^2 \alpha_2^2 + 2885056 \alpha_2^8 \alpha_3^5 + 70752 \alpha_2^7 \alpha_3^6 \\
& - 24890016 \alpha_1^6 \alpha_2^7 - 7421200 \alpha_1^5 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 20491380 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^7 \alpha_1 \alpha_3 - 99792 \alpha_1^6 \alpha_3 \alpha_2^3 \\
& - 458080 \alpha_1 \alpha_3^8 \alpha_2^4 + 13248 \alpha_2^5 \alpha_3^8 - 7511136 \alpha_1^8 \alpha_2^5 \\
& - 11474496 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \\
& + 5807664 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \\
& + 26777520 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^7 \alpha_3^2 - 1218447 \alpha_1^7 \alpha_2^4 \\
& + 17496 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^5 \\
& - 1464336 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^7 + 219069 \alpha_1^2 \alpha_3^9 \\
& + 131904 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^8 \alpha_1^3 \\
& + 6197856 \alpha_1^6 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 13807584 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^4
\end{aligned}$$

$$\begin{aligned}
& + 11953040 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^5 + 222000 \alpha_3^7 \alpha_2^6 \\
& - 335834304 \alpha_1^5 \alpha_2^5 \alpha_3^2 + 36936 \alpha_1^7 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 9210880 \alpha_2^{10} \alpha_3^3 + 1518264 \alpha_1^8 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 108864 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \\
& - 12960 \alpha_2 \alpha_3^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 1057880 \alpha_3^6 \alpha_2^6 \\
& + 143640 \alpha_2^3 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 69600 \alpha_3^8 \alpha_2^4 \\
& - 8832 \alpha_1 \alpha_3^9 \alpha_2^3 + 2300400 \alpha_1^9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \\
& + 3240432 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^7 \\
& + 8867904 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^5 - 576 \alpha_1 \alpha_3^{10} \alpha_2^2 \\
& + 80224 \alpha_3^8 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 919784 \alpha_3^7 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 18606720 \alpha_1^5 \alpha_2 \alpha_3^7 \\
& + 368064 \alpha_1^3 \alpha_3^9 \alpha_2 + 8201120 \alpha_3^5 \alpha_2^7 \\
& + 2494264 \alpha_2^6 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 4585280 \alpha_3^4 \alpha_2^8 \\
& - 283200 \alpha_2^5 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 615360 \alpha_3^7 \alpha_2^5 \\
& + 189142848 \alpha_1^5 \alpha_3^5 \alpha_2^3 - 564885 \alpha_2^4 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 18468 \alpha_3^9 \alpha_2^2 + 898560 \alpha_1^7 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 7350561 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^3 \\
& + 20068896 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^3 \\
& + 171072 \alpha_1^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& + 3348792 \alpha_1^6 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 2501118 \alpha_2^5 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 48225488 \alpha_1^8 \alpha_2^4 \alpha_3 \\
& - 2234464 \alpha_2^7 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 1004121 \alpha_1^3 \alpha_3^8 \\
& + 3674160 \alpha_3^3 \alpha_2^7 + 7546599 \alpha_3^5 \alpha_2^6 - 143640 \alpha_3^8 \alpha_2^3 - 1917486 \alpha_3^6 \alpha_2^5 \\
& + 259200 \alpha_1^9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& + 13248 \alpha_2^5 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 38928 \alpha_2^6 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 430713224 \alpha_1^5 \alpha_3^3 \alpha_2^4
\end{aligned}$$



$$\begin{aligned}
& + 755613 \alpha_3^7 \alpha_2^4 - 18468 \alpha_3^7 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 2267028 \alpha_1^3 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \\
& + 101472 \alpha_3^6 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 287280 \alpha_1^9 \alpha_3 \alpha_2 \\
& + 36936 \alpha_1^{10} \alpha_3 + 898560 \alpha_1^{10} \alpha_3 \alpha_2 \\
& + 11426048 \alpha_2^8 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 864 \alpha_2^4 \alpha_3^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 171072 \alpha_1^{11} \alpha_3 \\
& - 27726472 \alpha_1^6 \alpha_3^6 + 1186472 \alpha_1^3 \alpha_3^9 - 23494590 \alpha_1^4 \alpha_2 \alpha_3^6 + 3839463 \alpha_1^6 \alpha_3^5 \\
& - 171072 \alpha_1^{10} \alpha_2^2 - 299151 \alpha_1^9 \alpha_3^2 - 287280 \alpha_1^8 \alpha_2^3 - 898560 \alpha_1^9 \alpha_2^3 \\
& + 13964832 \alpha_1^7 \alpha_2 \alpha_3^3 - 372992 \alpha_2^8 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 18468 \alpha_1 \alpha_3^{10} - 10665024 \alpha_1^7 \alpha_2^5 - 90848 \alpha_1^2 \alpha_3^{10} + 13995456 \alpha_1^9 \alpha_3^3 \\
& - 3758832 \alpha_1^9 \alpha_2^4 - 35786144 \alpha_1^5 \alpha_2^7 - 499200 \alpha_3^4 \alpha_2^9 \\
& - 14580 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^7 - 42719184 \alpha_1^9 \alpha_3^2 \alpha_2^2 \\
& - 656640 \alpha_1^{10} \alpha_2^3 + 5171040 \alpha_1^8 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \\
& - 3690936 \alpha_1^8 \alpha_2^4 - 22778664 \alpha_1^6 \alpha_2^6 + 6577632 \alpha_1^{10} \alpha_3 \alpha_2^2 \\
& + 4569600 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^9 \alpha_1^2 - 19870232 \alpha_1^8 \alpha_3^4 \\
& + 16612648 \alpha_1^5 \alpha_3^7 - 3674160 \alpha_1 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^6 \\
& - 606852 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2^2 \\
& - 3474252 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^4 \\
& - 181696 \alpha_1 \alpha_3^7 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 33831000 \alpha_1^5 \alpha_3^5 \alpha_2 \\
& - 488592 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2 \\
& - 3019032 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^3 \\
& + 743256 \alpha_1^5 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 - 43947360 \alpha_1^6 \alpha_3^6 \alpha_2 \\
& - 6508134 \alpha_3^4 \alpha_2^7 + 1583388 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_3^4 \\
& + 4962060 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \alpha_3^2 \\
& - 191808 \alpha_1^6 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \\
& + 2256984 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2^5
\end{aligned}$$

$$\begin{aligned}
& + 132840 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \alpha_2 \\
& + 1551312 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2^3 \\
& - 504640 \alpha_1^2 \alpha_3^7 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 1172880 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \alpha_3^3 \\
& + 200232 \alpha_1^5 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 - 68363520 \alpha_1^7 \alpha_3^4 \alpha_2 \\
& - 207036 \alpha_1^6 \alpha_2^4 + 38880 \alpha_1^7 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 4328936 \alpha_1^2 \alpha_3^8 \alpha_2^2 - 23328 \alpha_1^8 \alpha_2^2 - 22433280 \alpha_1^4 \alpha_2^9 + 57024 \alpha_1^7 \alpha_2^3 \\
& + 214812 \alpha_1^5 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 16420256 \alpha_1^2 \alpha_3^7 \alpha_2^3 \\
& - 287388 \alpha_1^8 \alpha_3^2 + 60831936 \alpha_1^7 \alpha_2 \alpha_3^5 - 2239488 \alpha_3^4 \alpha_2^6 \\
& - 246888 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2^3 + 808380 \alpha_1^7 \alpha_3^3 \\
& + 1836432 \alpha_3^5 \alpha_2^5 + 272808 \alpha_3^7 \alpha_2^3 \\
& + 67716 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \alpha_2^2 - 2818800 \alpha_1^{11} \alpha_3^2 \\
& - 70308 \alpha_3^8 \alpha_2^2 - 762048 \alpha_3^6 \alpha_2^4 - 4416 \alpha_1^2 \alpha_3^{10} \alpha_2 - 126720 \alpha_1^3 \alpha_3^{10} \\
& + 44024400 \alpha_1^8 \alpha_3^5 + 864 \alpha_2^4 \alpha_3^9 \\
& - 1119744 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^5 + 25477760 \alpha_2^9 \alpha_3^3 \\
& - 27632640 \alpha_1 \alpha_2^{10} \alpha_3^2 - 8822160 \alpha_1^5 \alpha_3^8 + 24499440 \alpha_1^6 \alpha_3^7 \\
& - 153252 \alpha_1^6 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 18144 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 - 259200 \alpha_1^{11} \alpha_2^2 \\
& + 117958848 \alpha_1^4 \alpha_2^8 \alpha_3 - 25477760 \alpha_1^3 \alpha_2^9 - 9210880 \alpha_1^3 \alpha_2^{10} + 9350208 \alpha_1^3 \alpha_3^7 \alpha_2 \\
& - 61542180 \alpha_2^8 \alpha_3^2 \alpha_1 + 61542180 \alpha_1^2 \alpha_2^8 \alpha_3 + 20514060 \alpha_2^8 \alpha_3^3 \\
& - 68797440 \alpha_1^2 \alpha_3^2 \alpha_2^9 + 259200 \alpha_1^{12} \alpha_3 + 67799040 \alpha_1^3 \alpha_3 \alpha_2^9 + 27632640 \alpha_3 \alpha_2^{10} \alpha_1^2 \\
& + 76433280 \alpha_2^9 \alpha_3 \alpha_1^2 - 76433280 \alpha_2^9 \alpha_3^2 \alpha_1 \\
& - 11368896 \alpha_1^7 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3 \\
& - 23225088 \alpha_1^2 \alpha_2^8 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 3828276 \alpha_1 \alpha_3^5 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 139968 \alpha_1^8 \alpha_3 \alpha_2 \\
& - 158760 \alpha_1 \alpha_3^8 \alpha_2 + 36580860 \alpha_1^3 \alpha_2^4 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 23930880 \alpha_1 \alpha_3^3 \alpha_2^9 - 20514060 \alpha_2^8 \alpha_1^3 - 4154400 \alpha_1^4 \alpha_2 \alpha_3^8 + 24952320 \alpha_1^9 \alpha_2 \alpha_3^3
\end{aligned}$$

$$\begin{aligned}
& -874800 \alpha_1^4 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 + 131068992 \alpha_1^2 \alpha_3^5 \alpha_2^5 \\
& - 63638460 \alpha_1^2 \alpha_2^7 \alpha_3^2 + 1705968 \alpha_1^4 \alpha_3^9 - 51871688 \alpha_1^2 \alpha_3^6 \alpha_2^4 \\
& + 76314432 \alpha_1^7 \alpha_3 \alpha_2^5 + 44064 \alpha_3 \alpha_1^9) / ((4 \alpha_1^2 - 17 \alpha_1 \alpha_3 + 4 \alpha_3^2 + 25 \alpha_2^2) \\
& (\alpha_1^2 \alpha_3^2 - 2 \alpha_2^2 \alpha_1 \alpha_3 + \alpha_2^4)(25 \alpha_1^3 + 30 \alpha_1^2 \alpha_2 - 9 \alpha_3^3 - 68 \alpha_2^2 \alpha_3 \\
& - 25 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 30 \alpha_2 \alpha_3^2 \\
& - 30 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 16 \alpha_2 \alpha_3 + 43 \alpha_3^2 \alpha_1 - 59 \alpha_1^2 \alpha_3 \\
& + 68 \alpha_1 \alpha_2^2 + 16 \alpha_1 \alpha_2 - 9 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}) \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& (4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(36 \alpha_1^3 + 24 \alpha_1^2 \alpha_2 - 4 \alpha_3^3 - 27 \alpha_1^2 - 80 \alpha_2^2 \alpha_3 \\
& - 36 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 54 \alpha_1 \alpha_3 - 24 \alpha_2 \alpha_3^2 \\
& - 24 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 72 \alpha_2 \alpha_3 - 27 \alpha_3^2 + 44 \alpha_3^2 \alpha_1 \\
& - 76 \alpha_1^2 \alpha_3 + 80 \alpha_1 \alpha_2^2 + 72 \alpha_1 \alpha_2 - 4 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 45 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}), -5 \alpha_2^2 \beta^2 (-590212 \alpha_1 \alpha_3^2 \alpha_2^6 \\
& - 771329 \alpha_1 \alpha_3^4 \alpha_2^4 - 493584 \alpha_1 \alpha_3^4 \alpha_2^5 - 897900 \alpha_1 \alpha_3^3 \alpha_2^5 - 163296 \alpha_1 \alpha_3^6 \alpha_2^3 \\
& + 240548 \alpha_1^2 \alpha_2^6 \alpha_3 - 49896 \alpha_1^5 \alpha_2 \alpha_3^3 + 523100 \alpha_1^2 \alpha_3^4 \alpha_2^4 - 327804 \alpha_1^3 \alpha_3^5 \alpha_2 \\
& - 64836 \alpha_1 \alpha_3^5 \alpha_2^2 - 291200 \alpha_1 \alpha_3 \alpha_2^8 - 338036 \alpha_1 \alpha_3^5 \alpha_2^4 + 339024 \alpha_1^2 \alpha_3^5 \alpha_2^3 \\
& - 62812 \alpha_1 \alpha_3^7 \alpha_2 + 46368 \alpha_1^2 \alpha_3^7 \alpha_2 - 314496 \alpha_1 \alpha_3^2 \alpha_2^7 - 432040 \alpha_1 \alpha_2^7 \alpha_3 \\
& - 163872 \alpha_1 \alpha_3^3 \alpha_2^4 - 112968 \alpha_1 \alpha_3^4 \alpha_2^3 - 123768 \alpha_1 \alpha_3^2 \alpha_2^5 - 90720 \alpha_1 \alpha_2^6 \alpha_3 \\
& - 344968 \alpha_1^3 \alpha_3^3 \alpha_2^4 - 305408 \alpha_1^3 \alpha_3 \alpha_2^6 - 185976 \alpha_1^3 \alpha_2^2 \alpha_3^3 - 106848 \alpha_1^3 \alpha_2^4 \alpha_3 \\
& + 50116 \alpha_1^5 \alpha_2^2 \alpha_3^3 - 181564 \alpha_1^3 \alpha_3^5 \alpha_2^2 - 43716 \alpha_1^5 \alpha_2^4 \alpha_3 + 219240 \alpha_1^2 \alpha_2^4 \alpha_3^2 \\
& + 164160 \alpha_1^2 \alpha_2^2 \alpha_3^4 + 510320 \alpha_1^2 \alpha_3^2 \alpha_2^6 + 417230 \alpha_1^4 \alpha_2^2 \alpha_3^3 - 52416 \alpha_1^2 \alpha_2^7 \alpha_3 \\
& + 58536 \alpha_1^4 \alpha_3 \alpha_2^3 - 486370 \alpha_1 \alpha_3^5 \alpha_2^3 - 215081 \alpha_1 \alpha_3^6 \alpha_2^2 + 154820 \alpha_1^2 \alpha_3^6 \alpha_2^2 \\
& + 495936 \alpha_1^2 \alpha_3^3 \alpha_2^5 + 95184 \alpha_1^4 \alpha_3^2 \alpha_2^2 + 79100 \alpha_1^4 \alpha_2^2 \alpha_3^4 + 133744 \alpha_1^4 \alpha_3^2 \alpha_2^4 \\
& + 88025 \alpha_1^4 \alpha_3 \alpha_2^4 + 44252 \alpha_1^7 \alpha_3 \alpha_2^2 - 18468 \alpha_1^5 \alpha_3 \alpha_2^2 - 92628 \alpha_1^6 \alpha_3^2 \alpha_2^2 \\
& - 519232 \alpha_1 \alpha_3^3 \alpha_2^6 - 57124 \alpha_1 \alpha_3^7 \alpha_2^2 - 681510 \alpha_1^3 \alpha_2^2 \alpha_3^4 - 28148 \alpha_1^6 \alpha_3^2 \alpha_2 \\
& + 211416 \alpha_1^2 \alpha_3^6 \alpha_2 + 112560 \alpha_1^4 \alpha_3^3 \alpha_2^3 + 17270 \alpha_1^5 \alpha_3 \alpha_2^3 - 110208 \alpha_1^4 \alpha_3 \alpha_2^5 \\
& + 234176 \alpha_1^4 \alpha_3^2 \alpha_2^3 - 575158 \alpha_1^3 \alpha_2^4 \alpha_3^2 - 819100 \alpha_1^3 \alpha_3^3 \alpha_2^3 - 394260 \alpha_1^3 \alpha_2^5 \alpha_3
\end{aligned}$$

$$\begin{aligned}
& + 79920 \alpha_1^4 \alpha_2 \alpha_3^3 + 6012 \alpha_1^5 \alpha_3^5 - 95456 \alpha_1^5 \alpha_3^4 + 6444 \alpha_1^2 \alpha_3^8 + 238684 \alpha_1^4 \alpha_3^4 \alpha_2 \\
& + 145600 \alpha_1^2 \alpha_2^8 + 36372 \alpha_1^3 \alpha_2^6 - 8313 \alpha_1^5 \alpha_2^4 + 17136 \alpha_1^5 \alpha_2^5 - 121098 \alpha_1^3 \alpha_3^6 \\
& - 50400 \alpha_1^3 \alpha_3^5 - 72576 \alpha_1^3 \alpha_3^6 \alpha_2 - 47712 \alpha_1^3 \alpha_3^2 \alpha_2^5 - 282240 \alpha_1^3 \alpha_3^4 \alpha_2^3 \\
& - 96336 \alpha_1^3 \alpha_3^4 \alpha_2 + 12096 \alpha_1^4 \alpha_3^6 + 139776 \alpha_1^3 \alpha_2^7 + 137144 \alpha_1^4 \alpha_3^5 \\
& + 566995 \alpha_1^2 \alpha_3^5 \alpha_2^2 + 1093134 \alpha_1^2 \alpha_3^3 \alpha_2^4 - 150013 \alpha_1^5 \alpha_3^2 \alpha_2^2 + 103704 \alpha_1^4 \alpha_2^6 \\
& - 176472 \alpha_1^3 \alpha_2^3 \alpha_3^2 + 96552 \alpha_1^2 \alpha_2^5 \alpha_3 + 54000 \alpha_1^4 \alpha_3^4 - 31536 \alpha_1^5 \alpha_3^3 \\
& - 23112 \alpha_1^3 \alpha_2^5 + 978956 \alpha_1^2 \alpha_3^4 \alpha_2^3 + 60048 \alpha_1^2 \alpha_3^5 \alpha_2 + 981464 \alpha_1^2 \alpha_3^2 \alpha_2^5 \\
& + 60480 \alpha_1^4 \alpha_3^5 \alpha_2 + 144 \alpha_3^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 12744 \alpha_1^3 \alpha_3^7 \\
& + 214920 \alpha_1^2 \alpha_3^3 \alpha_2^3 + 44804 \alpha_1^6 \alpha_3^3 - 37044 \alpha_1^6 \alpha_3^4 - 15266 \alpha_1^7 \alpha_3^2 \\
& + 6216 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \\
& + 111200 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2^6 \\
& + 1296 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 + 25704 \alpha_1^2 \alpha_3^6 \\
& + 8568 \alpha_1^4 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 45360 \alpha_1^2 \alpha_2^6 + 11484 \alpha_1^4 \alpha_2^4 \\
& + 576 \alpha_3^8 + 34340 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \\
& - 12580 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \\
& - 17358 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^5 \\
& - 4140 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \\
& - 16992 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \\
& + 3780 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \\
& - 38362 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 + 1360 \alpha_3^9 \\
& - 8924 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \\
& - 78080 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^6 \\
& + 14616 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 + 29438 \alpha_1^4 \alpha_2^5 \\
& + 3636 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \\
& + 55760 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2^4 \\
& + 7776 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_3^4
\end{aligned}$$

$$\begin{aligned}
& + 11556 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \\
& - 5328 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \\
& + 576 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \\
& + 1360 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^7 \\
& + 25164 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \alpha_3^2 + 36183 \alpha_1^6 \alpha_3 \alpha_2^2 \\
& - 1620 \alpha_1 \alpha_3^9 + 144 \alpha_3^{10} - 28998 \alpha_1^3 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \\
& + 13052 \alpha_1^4 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& - 15792 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2 \\
& - 16208 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_3^3 \\
& + 139103 \alpha_1^2 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \\
& + 53760 \alpha_1^2 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^5 \\
& + 38232 \alpha_1^2 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \\
& + 200956 \alpha_1^2 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \\
& + 194805 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_3^3 \\
& + 28944 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \alpha_3^3 \\
& - 79 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 + 53088 \alpha_1^6 \alpha_2 \alpha_3^3 \\
& - 32832 \alpha_1^5 \alpha_3^2 \alpha_2 - 44688 \alpha_1^5 \alpha_3^4 \alpha_2 - 71904 \alpha_1^5 \alpha_2^3 \alpha_3^2 + 1344 \alpha_2 \alpha_3^9 \\
& - 43680 \alpha_1^7 \alpha_3^2 \alpha_2 - 17712 \alpha_1 \alpha_3^6 \alpha_2 + 48048 \alpha_1^6 \alpha_3 \alpha_2^3 \\
& - 30576 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^5 \\
& - 22680 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^5 + 27672 \alpha_3^7 \alpha_2^2 \\
& + 173641 \alpha_3^5 \alpha_2^4 - 109270 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^6 \\
& + 313292 \alpha_3^3 \alpha_2^6 + 1476 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& + 6720 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \\
& + 1344 \alpha_2 \alpha_3^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 14272 \alpha_1^4 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 227136 \alpha_3^3 \alpha_2^7 \\
& - 18144 \alpha_1^3 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2
\end{aligned}$$

$$\begin{aligned}
& -22140 \alpha_1^3 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& + 55044 \alpha_1^3 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \\
& + 1728 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2 \\
& + 22680 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^5 \alpha_3 \\
& + 16848 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^3 + 39996 \alpha_3^4 \alpha_2^4 \\
& - 70560 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^7 + 50328 \alpha_3^3 \alpha_2^5 + 20304 \alpha_3^5 \alpha_2^3 \\
& + 109270 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^6 \alpha_3 + 45360 \alpha_3^2 \alpha_2^6 \\
& - 1332 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^7 \\
& + 155458 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2^5 + 8928 \alpha_3^6 \alpha_2^2 \\
& + 6128 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \alpha_2 + 1728 \alpha_3^7 \alpha_2 + 281258 \alpha_3^4 \alpha_2^5 \\
& + 81284 \alpha_3^6 \alpha_2^3 - 33120 \alpha_1 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^6 \\
& - 41780 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2^2 \\
& - 145044 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^4 \\
& + 22848 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2 \\
& + 76608 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^3 \\
& - 52488 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \alpha_3^2 \\
& - 38340 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_3^3 \\
& - 36720 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \alpha_3 \\
& + 16800 \alpha_1^5 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \\
& + 57648 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_3^4 \\
& + 43164 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \alpha_3^2 \\
& + 104176 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2 \\
& + 51408 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2^2 \\
& - 13440 \alpha_1^6 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \\
& - 120624 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2^5 \\
& - 138100 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^5 \alpha_3
\end{aligned}$$

$$\begin{aligned}
& -247202 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^3 \\
& -11088 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \alpha_2 \\
& -97440 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2^3 \\
& -50556 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2 + 216020 \alpha_3^2 \alpha_2^7 \\
& -672 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \alpha_3^3 \\
& -22652 \alpha_1^5 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& -12432 \alpha_1^5 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \\
& -265481 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \alpha_3^2 \\
& -140017 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_3^4 \\
& -14256 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2 \\
& + 69028 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2^3 \\
& + 24952 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2^2 - 6216 \alpha_1^6 \alpha_2^3 \\
& + 126457 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^4 + 1724 \alpha_1^6 \alpha_2^4 - 4320 \alpha_1^5 \alpha_2^3 \\
& - 7200 \alpha_1^7 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 9000 \alpha_1^6 \alpha_3^2 - 3600 \alpha_1^8 \alpha_2^2 \\
& - 1476 \alpha_1^7 \alpha_2^2 + 1008 \alpha_1^6 \alpha_2^2 - 6720 \alpha_1^7 \alpha_2^3 \\
& - 11088 \alpha_1^5 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 6128 \alpha_3^8 \alpha_2 \\
& - 1440 \alpha_1^5 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 30600 \alpha_1^8 \alpha_3^2 + 2952 \alpha_1^8 \alpha_3 \\
& + 210616 \alpha_3^4 \alpha_2^6 + 21840 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2^3 \\
& + 50112 \alpha_1^7 \alpha_3^3 - 864 \alpha_1^7 \alpha_3 + 138432 \alpha_3^5 \alpha_2^5 + 24528 \alpha_3^7 \alpha_2^3 \\
& + 6340 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \alpha_2^2 \\
& + 70560 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^7 \alpha_3 + 6628 \alpha_3^8 \alpha_2^2 + 68152 \alpha_3^6 \alpha_2^4 \\
& + 145600 \alpha_3^2 \alpha_2^8 - 15300 \alpha_1 \alpha_3^8 + 216020 \alpha_1^2 \alpha_2^7 + 60860 \alpha_1^2 \alpha_3^7 \\
& + 97440 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^5 - 6480 \alpha_1 \alpha_3^7 \\
& + 16200 \alpha_1^6 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 3600 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& + 3922 \alpha_1^5 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 12432 \alpha_1^7 \alpha_3 \alpha_2
\end{aligned}$$

$$\begin{aligned}
& + 13440 \alpha_1^8 \alpha_3 \alpha_2 - 13776 \alpha_1 \alpha_3^8 \alpha_2 + 5184 \alpha_1^6 \alpha_3 \alpha_2 \\
& - 2592 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \\
& - 2952 \alpha_1^6 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1728 \alpha_1^4 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \\
& - 64769 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2^2 \\
& - 75112 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \alpha_3^3 \\
& + 27796 \alpha_1^4 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \\
& - 16447 \alpha_1^4 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& - 7728 \alpha_1^4 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 + 7200 \alpha_3 \alpha_1^9 \Big/ \left( \right. \\
& \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} (25 \alpha_1^3 + 30 \alpha_1^2 \alpha_2 - 9 \alpha_3^3 - 68 \alpha_2^2 \alpha_3 \\
& - 25 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 30 \alpha_2 \alpha_3^2 \\
& - 30 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 16 \alpha_2 \alpha_3 + 43 \alpha_3^2 \alpha_1 - 59 \alpha_1^2 \alpha_3 \\
& + 68 \alpha_1 \alpha_2^2 + 16 \alpha_1 \alpha_2 - 9 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} (36 \alpha_1^3 + 24 \alpha_1^2 \alpha_2 - 4 \alpha_3^3 - 27 \alpha_1^2 \\
& - 80 \alpha_2^2 \alpha_3 - 36 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 54 \alpha_1 \alpha_3 - 24 \alpha_2 \alpha_3^2 \\
& - 24 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 72 \alpha_2 \alpha_3 - 27 \alpha_3^2 + 44 \alpha_3^2 \alpha_1 \\
& - 76 \alpha_1^2 \alpha_3 + 80 \alpha_1 \alpha_2^2 + 72 \alpha_1 \alpha_2 - 4 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& \left. - 45 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} (\alpha_1^2 \alpha_3^2 - 2 \alpha_2^2 \alpha_1 \alpha_3 + \alpha_2^4) \right) \\
& (4 \alpha_1^2 - 17 \alpha_1 \alpha_3 + 4 \alpha_3^2 + 25 \alpha_2^2)(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3), 0 \Big]
\end{aligned}$$

> LK4:=LinearCoefficients(pbasis, Inva4, dim);

$$\begin{aligned}
LK4 := & \left[ 0, 10 (-942336 \alpha_1^8 \alpha_3 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \right. \\
& + 1513440 \alpha_1^8 \alpha_3^2 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 12553416 \alpha_1^5 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 175104 \alpha_1^9 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 23936 \alpha_1^{10} \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& \left. + 2385000 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^9 \alpha_3^3 \right)
\end{aligned}$$



$$\begin{aligned}
& + 162576 \alpha_1^5 \alpha_3^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 188860 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^8 \alpha_3^2 \\
& + 188860 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^8 \alpha_1^2 \\
& + 20098584 \alpha_1^5 \alpha_3^2 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 5832 \alpha_1^2 \alpha_3^{10} \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 2951136 \alpha_1^7 \alpha_3 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 5175000 \alpha_1^3 \alpha_2^9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1887552 \alpha_1^7 \alpha_3^4 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 44568 \alpha_1^6 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 4869216 \alpha_1^7 \alpha_3^2 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 81648 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^7 \alpha_2^5 \\
& + 50184 \alpha_1^3 \alpha_3^9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 377720 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^8 \alpha_1 \alpha_3 \\
& - 6300000 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^{10} \alpha_1 \alpha_3 \\
& - 65024 \alpha_1^9 \alpha_3 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 222336 \alpha_1^9 \alpha_3 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1586880 \alpha_1^5 \alpha_2 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 8769528 \alpha_1^2 \alpha_2^6 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 894320 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^9 \alpha_1 \alpha_3 + 240768 \alpha_1^{11} \alpha_3 \alpha_2^2 \\
& - 3276792 \alpha_1 \alpha_3^5 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 368496 \alpha_1 \alpha_3^7 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1156716 \alpha_1^2 \alpha_3^6 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 65024 \alpha_1^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \\
& + 327168 \alpha_1^9 \alpha_3^2 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 8081480 \alpha_1^8 \alpha_3^2 \alpha_2^3 \\
& - 1073664 \alpha_1^8 \alpha_3^3 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 3150000 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^{10} \alpha_3^2
\end{aligned}$$

$$\begin{aligned}
& -146736 \alpha_1^4 \alpha_3^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -54432 \alpha_1 \alpha_3^8 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -1113264 \alpha_1 \alpha_3^6 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 1320704 \alpha_1^{10} \alpha_3^3 \\
& + 333216 \alpha_1^8 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -9059760 \alpha_1 \alpha_3^3 \alpha_2^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1612800 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^6 \\
& -303768 \alpha_1^7 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -15987456 \alpha_1^5 \alpha_2^4 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 236160 \alpha_1^3 \alpha_3^8 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 343872 \alpha_1^3 \alpha_3^7 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -2056896 \alpha_1^5 \alpha_2^2 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 33824 \alpha_1^7 \alpha_2 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -785830 \alpha_1^6 \alpha_2^2 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -4433672 \alpha_1^4 \alpha_2 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 4169645 \alpha_1^5 \alpha_2^2 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -7982288 \alpha_1^4 \alpha_2^3 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 337644 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \alpha_2^6 \\
& -6848954 \alpha_1^2 \alpha_2^2 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 9416 \alpha_3^{11} \alpha_1^2 \\
& + 2976192 \alpha_1^6 \alpha_2 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -871104 \alpha_1^7 \alpha_2 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -27216 \alpha_1^2 \alpha_3^9 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1475864 \alpha_1^5 \alpha_2^3 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 14100408 \alpha_1^7 \alpha_3^5 \\
& + 10982596 \alpha_1^3 \alpha_2^2 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -603292 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2 - 5086088 \alpha_1^5 \alpha_3^6 \\
& -4432120 \alpha_1^7 \alpha_3^6 + 13020140 \alpha_1^6 \alpha_2 \alpha_3^4 \\
& + 2435108 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2
\end{aligned}$$

$$\begin{aligned}
& -7063356 \alpha_1^5 \alpha_2^2 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 3150000 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^{10} \alpha_1^2 \\
& - 2132928 \alpha_1^3 \alpha_2^6 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1492544 \alpha_1^6 \alpha_2^3 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 2669812 \alpha_1^5 \alpha_2^4 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 8445368 \alpha_1^3 \alpha_2^3 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 17496 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^8 \alpha_2^4 \\
& + 2917706 \alpha_1^6 \alpha_2^2 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 4405632 \alpha_1^4 \alpha_2^5 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 18387072 \alpha_1^3 \alpha_3^3 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 5707080 \alpha_1^5 \alpha_2^3 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 7029404 \alpha_1^3 \alpha_2^2 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 2851632 \alpha_1^3 \alpha_3^5 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 16040784 \alpha_1^3 \alpha_3^2 \alpha_2^7 \\
& + 6655296 \alpha_1^2 \alpha_2^5 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 8578578 \alpha_1^4 \alpha_3^2 \alpha_2^6 \\
& + 2516840 \alpha_1^6 \alpha_2^4 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 1747808 \alpha_1^7 \alpha_2 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 7033972 \alpha_1^5 \alpha_2^3 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 13608 \alpha_1^2 \alpha_3^7 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 4219416 \alpha_1 \alpha_3^4 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 2639952 \alpha_1^5 \alpha_2^5 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 4163478 \alpha_1^2 \alpha_2^6 \alpha_3^4 \\
& + 6851852 \alpha_1^4 \alpha_2^3 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 6628744 \alpha_1^4 \alpha_2^5 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 3286080 \alpha_1^8 \alpha_2^3 \alpha_3^3 \\
& + 22442696 \alpha_1^7 \alpha_2^2 \alpha_3^3 - 7602440 \alpha_1^4 \alpha_2^7 \alpha_3 + 4776912 \alpha_1^5 \alpha_2^6 \alpha_3 \\
& + 7908912 \alpha_1^3 \alpha_3^3 \alpha_2^6 + 6079696 \alpha_1 \alpha_3^6 \alpha_2^5 - 40726752 \alpha_1^4 \alpha_3^3 \alpha_2^5 \\
& + 2311684 \alpha_1^7 \alpha_3^4 \alpha_2^4 + 40832384 \alpha_1^3 \alpha_3^4 \alpha_2^5 - 43867512 \alpha_1^4 \alpha_3^4 \alpha_2^4 \\
& + 1374336 \alpha_1^5 \alpha_3^6 \alpha_2^6 + 67586372 \alpha_1^4 \alpha_3^4 \alpha_2^3 - 85539751 \alpha_1^3 \alpha_3^4 \alpha_2^4
\end{aligned}$$

$$\begin{aligned}
& + 70525445 \alpha_1^4 \alpha_3^3 \alpha_2^4 + 3843336 \alpha_1^2 \alpha_2^3 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 18206790 \alpha_1 \alpha_3^6 \alpha_2^4 - 84201960 \alpha_1^3 \alpha_3^3 \alpha_2^5 + 8275592 \alpha_1 \alpha_2^7 \alpha_3^4 \\
& - 2635792 \alpha_1^3 \alpha_2^8 \alpha_3 - 6810816 \alpha_1^4 \alpha_3^7 \alpha_2 + 42240 \alpha_1 \alpha_3^{10} \alpha_2 + 15044776 \alpha_1^3 \alpha_3^7 \alpha_2^2 \\
& - 11664 \alpha_1 \alpha_3^9 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 59171616 \alpha_1^3 \alpha_3^5 \alpha_2^3 \\
& - 9405675 \alpha_1^4 \alpha_2^2 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 2206796 \alpha_1^2 \alpha_2 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 2763307 \alpha_1 \alpha_3^8 \alpha_2^8 \\
& + 2579520 \alpha_1^3 \alpha_3^8 \alpha_2 + 37967669 \alpha_1^4 \alpha_3^5 \alpha_2^2 + 11016000 \alpha_1^5 \alpha_2 \alpha_3^6 \\
& + 47819592 \alpha_1^5 \alpha_3^5 \alpha_2^2 - 11469120 \alpha_1^6 \alpha_3^5 \alpha_2 \\
& - 7583361 \alpha_1^2 \alpha_2^6 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 7055188 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^2 \\
& - 2337896 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3 \alpha_2^4 \\
& + 14235436 \alpha_1 \alpha_3^3 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 10081948 \alpha_1 \alpha_3^4 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 19292780 \alpha_1^2 \alpha_3^2 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1529848 \alpha_1^3 \alpha_2^6 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 19332 \alpha_1^2 \alpha_3^8 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 10054179 \alpha_1 \alpha_3^2 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 2174874 \alpha_1^4 \alpha_2^6 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 1453072 \alpha_1 \alpha_3^4 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 3326640 \alpha_1^2 \alpha_3^3 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 3748444 \alpha_1 \alpha_3^3 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 3415796 \alpha_1^3 \alpha_2^6 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 654184 \alpha_1^2 \alpha_2^7 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1425296 \alpha_1^2 \alpha_2^6 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 4265608 \alpha_1^3 \alpha_2 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 26371643 \alpha_1^4 \alpha_2^6 \alpha_3 \\
& - 18602000 \alpha_1^3 \alpha_2^7 \alpha_3 + 51670600 \alpha_1^4 \alpha_3^2 \alpha_2^5
\end{aligned}$$

$$\begin{aligned}
& -19042791 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^2 \alpha_3^3 - 17910774 \alpha_1^3 \alpha_3^2 \alpha_2^8 \\
& + 4010398 \alpha_1^4 \alpha_3^7 - 5380994 \alpha_1^4 \alpha_2^4 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 4728456 \alpha_1^2 \alpha_2^7 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 68034362 \alpha_1^3 \alpha_3^2 \alpha_2^6 \\
& - 29491132 \alpha_1 \alpha_3^5 \alpha_2^5 - 14011388 \alpha_1^2 \alpha_2^3 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 8304208 \alpha_1^4 \alpha_2^4 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 8107732 \alpha_1^7 \alpha_3^3 \alpha_2^3 \\
& - 7056430 \alpha_1^4 \alpha_2^2 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 12122885 \alpha_1^2 \alpha_2^2 \alpha_3^7 \\
& + 55654038 \alpha_1^2 \alpha_2^4 \alpha_3^5 - 30160884 \alpha_1^5 \alpha_2^4 \alpha_3^2 - 14895068 \alpha_1^5 \alpha_2^5 \alpha_3 \\
& - 28057553 \alpha_1^3 \alpha_2^2 \alpha_3^6 + 5746812 \alpha_1^6 \alpha_2^4 \alpha_3 - 9635476 \alpha_1^4 \alpha_2^7 \alpha_3^2 \\
& + 14524747 \alpha_1^6 \alpha_2^2 \alpha_3^3 - 45581620 \alpha_1^5 \alpha_2^3 \alpha_3^3 + 65024 \alpha_1^{11} \alpha_3 \alpha_2 \\
& - 2836284 \alpha_1^5 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 8100 \alpha_3^9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 40483907 \alpha_1 \alpha_2^6 \alpha_3^4 \\
& + 834264 \alpha_1^2 \alpha_3^5 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 5873544 \alpha_1^4 \alpha_3^8 \\
& + 9527604 \alpha_1^3 \alpha_2^5 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 707136 \alpha_1^{10} \alpha_3^2 \alpha_2 \\
& + 2532464 \alpha_1^4 \alpha_2^5 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 8983263 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^4 \\
& + 9638898 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2^2 \\
& + 7048967 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2^4 \\
& + 4588901 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2^4 \\
& + 8697440 \alpha_1^2 \alpha_2^4 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1986084 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \\
& - 73728 \alpha_1^3 \alpha_2 \alpha_3^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 2789406 \alpha_1^2 \alpha_3^6 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 795232 \alpha_1 \alpha_3^6 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 3888332 \alpha_1^3 \alpha_2^3 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 4925568 \alpha_1^5 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \\
& + 9252792 \alpha_1^3 \alpha_2^5 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 36242512 \alpha_1^4 \alpha_3^5 \alpha_2^3
\end{aligned}$$

$$\begin{aligned}
& + 15813172 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^3 \alpha_3^3 \\
& - 37728 \alpha_1^9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3 \\
& - 1855200 \alpha_1^5 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1806264 \alpha_1^3 \alpha_3^6 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 1085536 \alpha_1 \alpha_3^8 \alpha_2^3 \\
& + 29258580 \alpha_1^3 \alpha_3^5 \alpha_2^4 - 3058072 \alpha_1^7 \alpha_3 \alpha_2^3 - 34198198 \alpha_1^4 \alpha_2^2 \alpha_3^6 \\
& - 22929928 \alpha_1^6 \alpha_2^3 \alpha_3^3 + 651824 \alpha_1^4 \alpha_2 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 4013672 \alpha_1^6 \alpha_2^3 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 170712 \alpha_1^4 \alpha_2^2 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 750314 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^4 - 30812941 \alpha_1^5 \alpha_2^2 \alpha_3^4 \\
& - 477216 \alpha_1^8 \alpha_2^2 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 23266410 \alpha_1^6 \alpha_2^2 \alpha_3^5 \\
& - 17167340 \alpha_1^5 \alpha_2^2 \alpha_3^6 + 42240706 \alpha_1^4 \alpha_2^6 \alpha_3^3 - 23033568 \alpha_1^5 \alpha_2^6 \alpha_3^2 \\
& + 32635959 \alpha_1^6 \alpha_2^4 \alpha_3^3 - 45867762 \alpha_1^5 \alpha_2^4 \alpha_3^4 \\
& + 5497288 \alpha_1^2 \alpha_3^2 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 713096 \alpha_1 \alpha_3^2 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 9654040 \alpha_1^4 \alpha_2^3 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 478448 \alpha_1 \alpha_3^9 \alpha_2^2 \\
& + 9400296 \alpha_1^4 \alpha_2^2 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 21312040 \alpha_1^3 \alpha_3^6 \alpha_2^3 \\
& - 12066824 \alpha_1^3 \alpha_2^4 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 1742448 \alpha_1^2 \alpha_3^6 \alpha_2^5 \\
& - 23611824 \alpha_1^4 \alpha_3^6 \alpha_2^3 + 7335836 \alpha_1^3 \alpha_3^7 \alpha_2^3 \\
& + 1189052 \alpha_1^2 \alpha_2^3 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 3885008 \alpha_1^2 \alpha_3^4 \alpha_2^7 \\
& + 3463736 \alpha_1^3 \alpha_3^3 \alpha_2^7 - 35183432 \alpha_1^4 \alpha_3^4 \alpha_2^5 + 15275408 \alpha_1^3 \alpha_3^5 \alpha_2^5 \\
& - 3992 \alpha_1^2 \alpha_2 \alpha_3^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 27205530 \alpha_1^2 \alpha_3^5 \alpha_2^6 \\
& - 45152452 \alpha_1^3 \alpha_3^4 \alpha_2^6 + 42085110 \alpha_1^4 \alpha_3^5 \alpha_2^4 \\
& - 290886 \alpha_1^2 \alpha_2^2 \alpha_3^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 8873923 \alpha_1^2 \alpha_3^7 \alpha_2^4 \\
& - 24971491 \alpha_1^3 \alpha_3^6 \alpha_2^4 + 8641152 \alpha_1^4 \alpha_3^7 \alpha_2^2 - 2994702 \alpha_1^3 \alpha_3^8 \alpha_2^2 \\
& - 8414744 \alpha_1^8 \alpha_2 \alpha_3^4 - 127305 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2^4 \\
& + 84480 \alpha_1^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3 \alpha_2
\end{aligned}$$

$$\begin{aligned}
& + 11035368 \alpha_1^5 \alpha_3^4 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 6516216 \alpha_1^4 \alpha_3^5 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 17171640 \alpha_1^2 \alpha_2^8 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 33352 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^9 + 1382332 \alpha_1^6 \alpha_2^5 \\
& - 806112 \alpha_1^4 \alpha_3^7 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1922940 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^8 \alpha_3^4 \\
& - 18864 \alpha_3^9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \\
& + 5022956 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^2 \alpha_3^2 - 16489552 \alpha_1^2 \alpha_2^7 \alpha_3^3 \\
& + 4180320 \alpha_1^2 \alpha_2^8 \alpha_3^2 + 99225 \alpha_3^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \\
& + 20606662 \alpha_1^2 \alpha_3^3 \alpha_2^8 + 2521190 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \alpha_1^3 \alpha_2^2 \\
& - 482436 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \alpha_1 \alpha_2^4 \\
& - 4074288 \alpha_1^3 \alpha_2^5 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 4117400 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^7 \alpha_1^2 - 40544500 \alpha_1^6 \alpha_3^4 \alpha_2^3 \\
& + 38842472 \alpha_1^5 \alpha_3^3 \alpha_2^5 - 22265296 \alpha_1^6 \alpha_3^2 \alpha_2^5 + 24078348 \alpha_1^7 \alpha_3^3 \alpha_2^3 \\
& - 22751208 \alpha_1^4 \alpha_3^3 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 2937968 \alpha_1 \alpha_3^3 \alpha_2^8 \\
& - 138032 \alpha_3^7 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \\
& - 18832 \alpha_3^8 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \\
& - 42240 \alpha_3^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \alpha_2 + 3415280 \alpha_1^4 \alpha_2^7 \\
& + 2097503 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \alpha_2^2 \\
& + 558900 \alpha_3^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \alpha_2 \\
& - 4174999 \alpha_2^6 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 1621703 \alpha_2^8 \alpha_3^2 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 3865948 \alpha_2^7 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \\
& - 2143000 \alpha_2^5 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \\
& - 1833000 \alpha_2^6 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \\
& + 1027676 \alpha_2^7 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}
\end{aligned}$$

$$\begin{aligned}
& +4820940 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^8 + 7029682 \alpha_1^6 \alpha_2^6 \alpha_3 \\
& - 9125288 \alpha_1^3 \alpha_2^5 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 585304 \alpha_1^7 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3 - 3287416 \alpha_1^9 \alpha_3^4 \\
& - 14366199 \alpha_1^7 \alpha_3^2 \alpha_2^4 + 11628652 \alpha_1^8 \alpha_3^3 \alpha_2^2 \\
& - 2093904 \alpha_1^6 \alpha_3^5 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 20778486 \alpha_1^7 \alpha_3^4 \alpha_2^2 \\
& - 28483760 \alpha_1 \alpha_3^3 \alpha_2^7 + 37038768 \alpha_1^5 \alpha_2^3 \alpha_3^4 + 621176 \alpha_1^4 \alpha_2^8 \\
& + 4499676 \alpha_1^6 \alpha_3^4 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 77442538 \alpha_1^2 \alpha_2^6 \alpha_3^3 \\
& - 87310980 \alpha_1^4 \alpha_2^8 \alpha_3^2 + 70797980 \alpha_1^2 \alpha_2^5 \alpha_3^4 + 30125984 \alpha_1^2 \alpha_2^3 \alpha_3^6 \\
& - 18900000 \alpha_2^{11} \alpha_3^2 \alpha_1 + 35337600 \alpha_1^2 \alpha_3^5 \alpha_2^7 - 76107600 \alpha_1^3 \alpha_3^4 \alpha_2^7 \\
& + 18900000 \alpha_2^{11} \alpha_3 \alpha_1^2 - 3880656 \alpha_1^7 \alpha_3^3 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 2817864 \alpha_1^9 \alpha_3^3 + 3407044 \alpha_1^2 \alpha_3^8 \alpha_2 + 17213784 \alpha_1^6 \alpha_3^2 \alpha_2^3 + 2384676 \alpha_3^6 \alpha_2^8 \\
& + 6300000 \alpha_2^{11} \alpha_3^3 + 4632120 \alpha_3^5 \alpha_2^9 + 1090872 \alpha_3^7 \alpha_2^7 + 4770000 \alpha_3^4 \alpha_2^{10} \\
& + 368028 \alpha_3^8 \alpha_2^6 + 6707700 \alpha_1^2 \alpha_3^6 \alpha_2^6 + 21453768 \alpha_1^3 \alpha_3^5 \alpha_2^6 - 2314922 \alpha_1^7 \alpha_3^4 \\
& + 9527760 \alpha_1^4 \alpha_3^4 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 765382 \alpha_1^8 \alpha_3^3 \\
& - 1434420 \alpha_1^2 \alpha_3^4 \alpha_2^8 + 59871600 \alpha_1^3 \alpha_3^3 \alpha_2^8 + 6385276 \alpha_1^5 \alpha_2^7 \alpha_3 \\
& - 902612 \alpha_1^2 \alpha_3^8 \alpha_2^3 - 568328 \alpha_1 \alpha_3^7 \alpha_2^5 + 659946 \alpha_1^2 \alpha_3^9 \alpha_2^2 - 6838146 \alpha_1^8 \alpha_3^2 \alpha_2^2 \\
& + 81648 \alpha_3^9 \alpha_2^5 - 3156931 \alpha_1^5 \alpha_2^6 + 797376 \alpha_1^9 \alpha_3^2 \alpha_2 - 658260 \alpha_1 \alpha_3^9 \alpha_2 \\
& + 1490140 \alpha_1^8 \alpha_3^2 \alpha_2 + 985048 \alpha_1^9 \alpha_3 \alpha_2^2 - 41861138 \alpha_1^6 \alpha_2^2 \alpha_3^4 - 966760 \alpha_1^7 \alpha_2^6 \\
& + 350918 \alpha_1^8 \alpha_3 \alpha_2^2 + 8100 \alpha_3^{11} - 1004719 \alpha_1^5 \alpha_2^8 - 6309040 \alpha_1^6 \alpha_3 \alpha_2^5 \\
& + 846792 \alpha_1^3 \alpha_3^9 \alpha_2^2 - 4328316 \alpha_1^4 \alpha_3^8 \alpha_2^2 + 1613808 \alpha_1^4 \alpha_3^7 \alpha_2^3 \\
& - 12603312 \alpha_1^5 \alpha_3^6 \alpha_2^3 + 11427408 \alpha_1^5 \alpha_3^7 \alpha_2^2 - 4064400 \alpha_1 \alpha_3^7 \alpha_2^6 \\
& + 3915576 \alpha_1^3 \alpha_3^7 \alpha_2^4 + 5077676 \alpha_1^7 \alpha_3 \alpha_2^4 + 29825496 \alpha_1^6 \alpha_2^3 \alpha_3^5 \\
& - 34985016 \alpha_1^7 \alpha_2^3 \alpha_3^4 - 4117400 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^7 \alpha_3^2 \\
& - 12104 \alpha_1^9 \alpha_2^2 - 455648 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^7 \\
& - 998208 \alpha_1^7 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 8159460 \alpha_1^6 \alpha_3^6 \alpha_2^6 \\
& - 11239307 \alpha_1 \alpha_3^4 \alpha_2^8 + 1891548 \alpha_1^4 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 19794712 \alpha_1^6 \alpha_3^2 \alpha_2^4 + 1355875 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4
\end{aligned}$$



$$\begin{aligned}
& -24392 \alpha_1^8 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 8196936 \alpha_1^7 \alpha_3^2 \alpha_2^3 \\
& + 2301112 \alpha_1^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \\
& - 995104 \alpha_1^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \\
& - 1058172 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^4 - 72758988 \alpha_1^6 \alpha_2^4 \alpha_3^4 \\
& + 477887 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^5 \\
& - 66592 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^6 - 19093644 \alpha_1^6 \alpha_2^2 \alpha_3^6 \\
& - 2558772 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^3 \alpha_3 + 21434760 \alpha_1^7 \alpha_2^2 \alpha_3^5 \\
& - 1559940 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \\
& + 202983 \alpha_1^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \\
& + 447160 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^9 \alpha_3^2 \\
& - 707760 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \\
& + 1097757 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 + 46382976 \alpha_1^4 \alpha_3^5 \alpha_2^5 \\
& + 114401952 \alpha_1^5 \alpha_2^6 \alpha_3^3 - 3960000 \alpha_1 \alpha_2^{10} \alpha_3^3 + 26280000 \alpha_1^3 \alpha_2^{10} \alpha_3 \\
& - 16740000 \alpha_1^2 \alpha_2^{10} \alpha_3^2 - 85002300 \alpha_1^4 \alpha_2^6 \alpha_3^4 - 3419252 \alpha_1 \alpha_3^5 \alpha_2^7 \\
& - 25896600 \alpha_1 \alpha_3^4 \alpha_2^9 - 81991008 \alpha_1^5 \alpha_3^4 \alpha_2^5 - 10493928 \alpha_1 \alpha_3^6 \alpha_2^7 \\
& - 18274104 \alpha_1^3 \alpha_3^6 \alpha_2^5 - 25872876 \alpha_1^4 \alpha_3^6 \alpha_2^4 - 11946744 \alpha_1 \alpha_3^5 \alpha_2^8 \\
& + 60325200 \alpha_1^2 \alpha_2^9 \alpha_3^3 - 71917200 \alpha_1^3 \alpha_2^9 \alpha_3^2 + 58856112 \alpha_1^5 \alpha_3^5 \alpha_2^4 \\
& - 1466432 \alpha_1^8 \alpha_3^3 \alpha_2^3 + 151416 \alpha_1^2 \alpha_3^9 \alpha_2^3 + 157032 \alpha_1^3 \alpha_3^8 \alpha_2^3 - 529344 \alpha_1^2 \alpha_3^9 \alpha_2^9 \\
& - 530964 \alpha_1^{10} \alpha_3^2 - 3566095 \alpha_1^7 \alpha_3^2 \alpha_2^2 + 2352663 \alpha_2^8 \alpha_3^5 + 675116 \alpha_2^7 \alpha_3^6 \\
& - 1354408 \alpha_1^6 \alpha_2^7 - 2453040 \alpha_1^5 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 817200 \alpha_1^4 \alpha_3^9 \alpha_2 + 919296 \alpha_1^5 \alpha_3^8 \alpha_2 \\
& + 890712 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^7 \alpha_3^5 - 4069728 \alpha_1^7 \alpha_2 \alpha_3^6 \\
& + 902736 \alpha_1^6 \alpha_2 \alpha_3^7 + 5581872 \alpha_1^8 \alpha_2 \alpha_3^5 \\
& + 8234800 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^7 \alpha_1 \alpha_3 - 54432 \alpha_1 \alpha_3^{10} \alpha_2^3 \\
& - 1560948 \alpha_1 \alpha_3^8 \alpha_2^4 - 1496016 \alpha_1 \alpha_3^8 \alpha_2^5 + 77000 \alpha_2^5 \alpha_3^8 - 612224 \alpha_1^8 \alpha_2^5 \\
& + 52073208 \alpha_1^7 \alpha_2^4 \alpha_3^3 + 46170504 \alpha_1^5 \alpha_2^8 \alpha_3 \\
& - 3176360 \alpha_1^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5
\end{aligned}$$

$$\begin{aligned}
& +21774744 \alpha_1^3 \alpha_3^2 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& +2663936 \alpha_1^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \\
& +2714528 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^7 \alpha_3^2 - 322895 \alpha_1^7 \alpha_2^4 \\
& -1311728 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^7 \\
& +615168 \alpha_1^7 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 658102 \alpha_1^2 \alpha_3^9 \\
& +339064 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^8 \alpha_1^3 \\
& +482176 \alpha_1^6 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& +374088 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^4 + 109252440 \alpha_1^4 \alpha_2^7 \alpha_3^3 \\
& +3222432 \alpha_1^5 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& +618472 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^5 + 253728 \alpha_1^3 \alpha_3^{10} \alpha_2 \\
& -21492 \alpha_1^2 \alpha_3^{10} \alpha_2^2 - 27216 \alpha_1^2 \alpha_3^{11} \alpha_2 + 836322 \alpha_3^7 \alpha_2^6 + 22493104 \alpha_1^5 \alpha_2^5 \alpha_3^2 \\
& +20296 \alpha_1^7 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 412992 \alpha_1^9 \alpha_3^4 \alpha_2 \\
& +901180 \alpha_2^{10} \alpha_3^3 + 289620 \alpha_1^8 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& +405000 \alpha_1 \alpha_2^9 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 16079652 \alpha_1^8 \alpha_3^4 \alpha_2^2 \\
& -260710 \alpha_3^6 \alpha_2^6 + 22287168 \alpha_1^8 \alpha_3^3 \alpha_2^3 + 35286768 \alpha_1^6 \alpha_3^7 \alpha_2^7 \\
& -761412 \alpha_2^3 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 188900 \alpha_3^8 \alpha_2^4 \\
& -18864 \alpha_3^{10} \alpha_2^2 - 7984 \alpha_1 \alpha_3^9 \alpha_2^3 \\
& +236368 \alpha_1^9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \\
& +240848 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^7 \\
& -621440 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^5 - 66704 \alpha_1 \alpha_3^{10} \alpha_2^2 \\
& +210348 \alpha_3^8 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -869760 \alpha_3^7 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 73297620 \alpha_1^6 \alpha_2^6 \alpha_3^2 \\
& -89987112 \alpha_1^5 \alpha_2^7 \alpha_3^2 + 82405656 \alpha_1^6 \alpha_2^5 \alpha_3^3 + 9073216 \alpha_1^5 \alpha_2 \alpha_3^7 \\
& +795824 \alpha_1^3 \alpha_3^9 \alpha_2 - 1622568 \alpha_3^5 \alpha_2^7 \\
& +916638 \alpha_2^6 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 772264 \alpha_3^4 \alpha_2^8 \\
& +289696 \alpha_2^5 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 556192 \alpha_3^7 \alpha_2^5
\end{aligned}$$

$$\begin{aligned}
& -42240 \alpha_3^9 \alpha_2^3 + 49680 \alpha_3^{10} \alpha_2 + 40479880 \alpha_1^5 \alpha_3^5 \alpha_2^3 \\
& -1848775 \alpha_2^4 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 245781 \alpha_3^9 \alpha_2^2 \\
& -84480 \alpha_1^7 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 43001496 \alpha_1^7 \alpha_3^2 \alpha_2^5 \\
& + 1704181 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^3 \\
& + 198424 \alpha_2^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^3 \\
& + 37728 \alpha_1^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& + 295684 \alpha_1^6 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 21390120 \alpha_1^7 \alpha_3 \alpha_2^6 \\
& - 3412088 \alpha_2^5 \alpha_3^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 3384008 \alpha_1^8 \alpha_2^4 \alpha_3 \\
& + 7643376 \alpha_1^9 \alpha_3^3 \alpha_2^2 - 257336 \alpha_2^7 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 20523276 \alpha_1^8 \alpha_3^2 \alpha_2^4 - 2063222 \alpha_1^3 \alpha_3^8 + 7861019 \alpha_3^5 \alpha_2^6 + 860772 \alpha_3^8 \alpha_2^3 \\
& + 4737248 \alpha_3^6 \alpha_2^5 + 23936 \alpha_1^9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& + 142024 \alpha_2^5 \alpha_3^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 434258 \alpha_2^6 \alpha_3^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 18864 \alpha_3^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 + 38975100 \alpha_1^5 \alpha_3^3 \alpha_2^4 \\
& + 42240 \alpha_3^7 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 2304025 \alpha_3^7 \alpha_2^4 \\
& - 49680 \alpha_3^8 \alpha_2^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 229581 \alpha_3^7 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 275588 \alpha_3^6 \alpha_2^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 5832 \alpha_1^2 \alpha_3^{12} \\
& - 164896 \alpha_1^9 \alpha_3 \alpha_2 + 8008 \alpha_1^{10} \alpha_3 - 84480 \alpha_1^{10} \alpha_3 \alpha_2 + 881784 \alpha_1^5 \alpha_3^9 \\
& - 2046744 \alpha_1^8 \alpha_3^6 + 2108232 \alpha_1^7 \alpha_3^7 - 1613880 \alpha_1^6 \alpha_3^8 \\
& - 120017 \alpha_2^8 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 52184 \alpha_2^4 \alpha_3^7 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 4608 \alpha_1^{13} \alpha_3 + 37728 \alpha_1^{11} \alpha_3 \\
& - 16041312 \alpha_1^6 \alpha_3^6 + 1765512 \alpha_1^3 \alpha_3^9 + 16449636 \alpha_1^4 \alpha_2 \alpha_3^6 + 4262650 \alpha_1^6 \alpha_3^5 \\
& - 37728 \alpha_1^{10} \alpha_2^2 - 132983 \alpha_1^9 \alpha_3^2 - 4144320 \alpha_1^9 \alpha_3^4 \alpha_2 - 4608 \alpha_1^{12} \alpha_2^2 \\
& + 132128 \alpha_1^8 \alpha_2^3 + 84480 \alpha_1^9 \alpha_2^3 - 5838204 \alpha_1^7 \alpha_2 \alpha_3^3 \\
& + 750843 \alpha_2^8 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 11664 \alpha_1 \alpha_3^{11} \alpha_2^2
\end{aligned}$$

$$\begin{aligned}
& -115425 \alpha_1 \alpha_3^{10} - 7965000 \alpha_1^2 \alpha_3 \alpha_2^9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 669056 \alpha_1^7 \alpha_2^5 - 289548 \alpha_1^2 \alpha_3^{10} \\
& + 4608 \alpha_1^{10} \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 + 1319360 \alpha_1^9 \alpha_3 \alpha_2^3 \\
& - 288720 \alpha_1^9 \alpha_2^4 + 36864 \alpha_1^9 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 18864 \alpha_1 \alpha_3^{11} + 1764864 \alpha_1^{10} \alpha_2 \alpha_3^3 + 1398184 \alpha_1^5 \alpha_2^7 + 1468464 \alpha_3^4 \alpha_2^9 \\
& - 3737952 \alpha_1^9 \alpha_3^2 \alpha_2^2 - 65024 \alpha_1^{10} \alpha_2^3 \\
& + 577088 \alpha_1^8 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 - 454084 \alpha_1^8 \alpha_2^4 \\
& - 4608 \alpha_1^{11} \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 36864 \alpha_1^{10} \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \\
& - 14855760 \alpha_1^3 \alpha_2^8 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 1057394 \alpha_1^6 \alpha_2^6 \\
& + 572960 \alpha_1^{10} \alpha_3 \alpha_2^2 + 447160 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^9 \alpha_1^2 \\
& - 10221120 \alpha_1^6 \alpha_2^3 \alpha_3^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 8046072 \alpha_1^8 \alpha_3^4 \\
& + 12041064 \alpha_1^5 \alpha_3^7 - 485936 \alpha_1 \alpha_3^7 \alpha_2^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 18189500 \alpha_1^5 \alpha_3^5 \alpha_2 - 16940016 \alpha_1^4 \alpha_2^7 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 13814824 \alpha_1^6 \alpha_3^6 \alpha_2 + 8356160 \alpha_3^4 \alpha_2^7 \\
& + 505536 \alpha_1^2 \alpha_3^7 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 7017984 \alpha_1^6 \alpha_2^5 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 11279916 \alpha_1^6 \alpha_2^4 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 7744704 \alpha_1^7 \alpha_3^4 \alpha_2 \\
& - 3816486 \alpha_1^2 \alpha_3^8 \alpha_2^2 + 216416 \alpha_1^4 \alpha_2^9 - 400896 \alpha_1^{11} \alpha_3^2 \alpha_2 + 3740256 \alpha_1^9 \alpha_3 \alpha_2^4 \\
& + 10059264 \alpha_1^8 \alpha_2^5 \alpha_3 - 7445088 \alpha_1^9 \alpha_3^2 \alpha_2^3 + 1089792 \alpha_1^{10} \alpha_3 \alpha_2^3 \\
& + 23497308 \alpha_1^4 \alpha_3^2 \alpha_2^6 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 7036648 \alpha_1^2 \alpha_3^7 \alpha_2^3 \\
& - 775584 \alpha_1^{10} \alpha_3^4 - 36864 \alpha_1^{11} \alpha_2^3 + 13455216 \alpha_1^7 \alpha_2^5 \alpha_3 - 688896 \alpha_1^9 \alpha_2^5 \\
& - 4379040 \alpha_1^7 \alpha_2^7 - 284240 \alpha_1^{11} \alpha_3^2 - 69016 \alpha_1^2 \alpha_3^{10} \alpha_2 + 6521976 \alpha_1^2 \alpha_3^7 \alpha_2^5 \\
& + 1151532 \alpha_1^2 \alpha_3^8 \alpha_2^4 - 6300000 \alpha_1^3 \alpha_2^{11} + 64680 \alpha_1^3 \alpha_3^{10} + 4881800 \alpha_1^8 \alpha_3^5 \\
& + 43284600 \alpha_1^4 \alpha_2^9 \alpha_3 + 76120 \alpha_2^4 \alpha_3^9 + 1483560 \alpha_1^9 \alpha_3^5 - 10428120 \alpha_1^5 \alpha_2^9 \\
& - 318600 \alpha_1^4 \alpha_3^{10} - 294560 \alpha_2^9 \alpha_3^3 - 2703540 \alpha_1 \alpha_2^{10} \alpha_3^2 - 537064 \alpha_1^5 \alpha_3^8 \\
& + 2331560 \alpha_1^6 \alpha_3^7 + 36864 \alpha_1^{12} \alpha_3 \alpha_2 - 23936 \alpha_1^{11} \alpha_2^2 + 7195475 \alpha_1^4 \alpha_2^8 \alpha_3
\end{aligned}$$

$$\begin{aligned}
& + 294560 \alpha_1^3 \alpha_2^9 - 901180 \alpha_1^3 \alpha_2^{10} - 10350000 \alpha_1^4 \alpha_2^{10} + 17496 \alpha_3^{10} \alpha_2^4 \\
& + 66456 \alpha_3^{11} \alpha_1^3 - 9565780 \alpha_1^3 \alpha_3^7 \alpha_2 \\
& + 176832 \alpha_1^8 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \\
& + 45504 \alpha_1^{10} \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 24708180 \alpha_2^8 \alpha_3^2 \alpha_1 \\
& + 24708180 \alpha_1^2 \alpha_2^8 \alpha_3 + 8236060 \alpha_2^8 \alpha_3^3 + 5054640 \alpha_1^2 \alpha_3^2 \alpha_2^9 - 7734636 \alpha_1^6 \alpha_2^8 \\
& + 23936 \alpha_1^{12} \alpha_3 - 2117712 \alpha_1^3 \alpha_3 \alpha_2^9 + 2703540 \alpha_3 \alpha_2^{10} \alpha_1^2 - 883680 \alpha_2^9 \alpha_3 \alpha_1^2 \\
& + 883680 \alpha_2^9 \alpha_3^2 \alpha_1 - 1059264 \alpha_1^7 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3 \\
& + 990877 \alpha_1^2 \alpha_2^8 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 5532644 \alpha_1 \alpha_3^5 \alpha_2^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 15712725 \alpha_1^3 \alpha_2^4 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 186048 \alpha_1^{10} \alpha_2^4 \\
& - 1957248 \alpha_1^8 \alpha_2^6 - 4621808 \alpha_1 \alpha_3^3 \alpha_2^9 - 8236060 \alpha_2^8 \alpha_1^3 - 2053728 \alpha_1^{10} \alpha_3^2 \alpha_2^2 \\
& - 3642600 \alpha_1^4 \alpha_2^8 \alpha_3 + 3259040 \alpha_1^9 \alpha_2 \alpha_3^3 - 22482256 \alpha_1^2 \alpha_3^5 \alpha_2^5 \\
& + 35314320 \alpha_1^2 \alpha_2^7 \alpha_3^2 - 72424 \alpha_1^4 \alpha_3^9 - 11317832 \alpha_1^2 \alpha_3^6 \alpha_2^4 + 6176848 \alpha_1^7 \alpha_3 \alpha_2^5 \\
& + 270720 \alpha_1^{11} \alpha_3^3 - 54720 \alpha_1^{12} \alpha_3^2) \alpha_2^2 \beta^2 / ( \\
& \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} (36 \alpha_1^3 + 72 \alpha_1^2 \alpha_2 - 36 \alpha_3^3 + 21 \alpha_1^2 \\
& - 144 \alpha_2^2 \alpha_3 - 36 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 42 \alpha_1 \alpha_3 - 72 \alpha_2 \alpha_3^2 \\
& - 72 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 40 \alpha_2 \alpha_3 + 21 \alpha_3^2 + 108 \alpha_3^2 \alpha_1 \\
& - 108 \alpha_1^2 \alpha_3 + 144 \alpha_1 \alpha_2^2 - 40 \alpha_1 \alpha_2 - 36 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 29 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}) (\alpha_1^2 \alpha_3^2 - 2 \alpha_2^2 \alpha_1 \alpha_3 + \alpha_2^4) \\
& (4 \alpha_1^2 - 17 \alpha_1 \alpha_3 + 4 \alpha_3^2 + 25 \alpha_2^2) (4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3) (25 \alpha_1^3 + 12 \alpha_1^3 \alpha_2 \\
& - 25 \alpha_3^3 - 9 \alpha_3^4 - 100 \alpha_2^2 \alpha_3 + 7 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 48 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 3 \alpha_1^3 \alpha_3 - 15 \alpha_1^2 \alpha_3^2 + 16 \alpha_1^2 \alpha_2^2 \\
& + 23 \alpha_1 \alpha_3^3 - 36 \alpha_3^2 \alpha_2^2 + 20 \alpha_2^2 \alpha_1 \alpha_3 + 4 \alpha_1^4 - 48 \alpha_2^3 \alpha_3 - 12 \alpha_2 \alpha_3^3 + 75 \alpha_3^2 \alpha_1 \\
& - 75 \alpha_1^2 \alpha_3 + 100 \alpha_1 \alpha_2^2 + 36 \alpha_1 \alpha_2 \alpha_3^2 + 48 \alpha_1 \alpha_2^3 - 36 \alpha_1^2 \alpha_2 \alpha_3 \\
& - 12 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \\
& - 12 \alpha_3 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 13 \alpha_1 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}
\end{aligned}$$

$$\begin{aligned}
& -26 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& -9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \\
& -4 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -7 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} (4 \alpha_1^3 + 12 \alpha_1^2 \alpha_2 - 9 \alpha_3^3 - 7 \alpha_1^2 \\
& -26 \alpha_2^2 \alpha_3 - 4 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 14 \alpha_1 \alpha_3 - 12 \alpha_2 \alpha_3^2 \\
& -12 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} + 48 \alpha_2 \alpha_3 - 7 \alpha_3^2 + 22 \alpha_3^2 \alpha_1 \\
& -17 \alpha_1^2 \alpha_3 + 26 \alpha_1 \alpha_2^2 - 48 \alpha_1 \alpha_2 - 9 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& -25 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2}), \frac{5}{4} (-4320 \alpha_1 \alpha_2^5 \alpha_3 + 1152 \alpha_1^2 \alpha_2^5 \\
& + 3500 \alpha_1 \alpha_2^6 + 3282 \alpha_1 \alpha_3^5 \alpha_2^2 + 7544 \alpha_1 \alpha_3^3 \alpha_2^4 + 3168 \alpha_1 \alpha_3^4 \alpha_2^3 + 4812 \alpha_1 \alpha_3^2 \alpha_2^5 \\
& + 3040 \alpha_1 \alpha_2^6 \alpha_3 + 5482 \alpha_1^3 \alpha_2^2 \alpha_3^3 + 1576 \alpha_1^3 \alpha_2^3 \alpha_3^4 - 6756 \alpha_1^2 \alpha_2^4 \alpha_3^2 \\
& - 6600 \alpha_1^2 \alpha_2^2 \alpha_3^4 + 84 \alpha_1^4 \alpha_3^2 \alpha_2^3 - 1975 \alpha_1^4 \alpha_3^2 \alpha_2^2 + 356 \alpha_1^5 \alpha_3^2 \alpha_2^2 + 3168 \alpha_3^2 \alpha_2^5 \\
& - 3500 \alpha_2^6 \alpha_3 - 516 \alpha_1^4 \alpha_2 \alpha_3^3 + 1952 \alpha_1^3 \alpha_3^5 + 1356 \alpha_1^3 \alpha_3^4 \alpha_2 + 1920 \alpha_1^3 \alpha_2^3 \alpha_3^2 \\
& - 2844 \alpha_1^2 \alpha_2^5 \alpha_3 - 1586 \alpha_1^4 \alpha_3^4 + 687 \alpha_1^5 \alpha_3^3 + 228 \alpha_1^3 \alpha_2^5 - 1212 \alpha_1^2 \alpha_3^5 \alpha_2 \\
& + 164 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^3 \alpha_2^2 - 4488 \alpha_1^2 \alpha_3^3 \alpha_2^3 + 96 \alpha_2 \alpha_3^6 \\
& - 2190 \alpha_1^2 \alpha_3^5 + 656 \alpha_1 \alpha_3^6 - 888 \alpha_1 \alpha_2 \alpha_3^5 - 56 \alpha_1^6 \alpha_3 - 1845 \alpha_1^4 \alpha_3 \alpha_2^2 - 384 \alpha_1^5 \alpha_2 \alpha_3 \\
& + 5341 \alpha_1 \alpha_2^2 \alpha_3^4 - 10291 \alpha_1^2 \alpha_2^2 \alpha_3^3 + 7587 \alpha_1^3 \alpha_2^2 \alpha_3^2 + 3330 \alpha_1^3 \alpha_3^4 \\
& + 1752 \alpha_1^4 \alpha_2 \alpha_3^2 - 3192 \alpha_1^3 \alpha_2^3 \alpha_3 + 2472 \alpha_1^2 \alpha_2 \alpha_3^4 - 5448 \alpha_1 \alpha_2^3 \alpha_3^3 \\
& + 7176 \alpha_1^2 \alpha_2^3 \alpha_3^2 - 3048 \alpha_1^3 \alpha_2 \alpha_3^3 - 3387 \alpha_2^4 \alpha_3^3 + 1176 \alpha_2^3 \alpha_3^4 + 10517 \alpha_2^4 \alpha_3^2 \alpha_1 \\
& + 92 \alpha_1^5 \alpha_2^2 + 1243 \alpha_1^3 \alpha_2^4 + 288 \alpha_1^4 \alpha_2^3 - 8373 \alpha_1^2 \alpha_2^4 \alpha_3 - 884 \alpha_3^5 \alpha_2^2 \\
& + 16 \alpha_1^4 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 - 1242 \alpha_1^2 \alpha_3^6 \\
& - 32 \alpha_1^4 \alpha_3^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 64 \alpha_1^2 \alpha_2^6 - 80 \alpha_1^4 \alpha_2^4 - 36 \alpha_3^8 \\
& - 64 \alpha_3^7 + 528 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \alpha_3^4 \\
& + 415 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 + 774 \alpha_1^5 \alpha_3^2 - 2450 \alpha_1^4 \alpha_3^3 \\
& - 612 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \\
& - 457 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_3^4 \\
& - 96 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4
\end{aligned}$$

$$\begin{aligned}
& -910 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^6 \\
& + 297 \alpha_1 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \\
& - 36 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^6 \\
& - 1442 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \alpha_3^2 \\
& - 180 \alpha_1^2 \alpha_3 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \\
& - 468 \alpha_1^2 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \alpha_3^3 - 120 \alpha_1^5 \alpha_3^2 \alpha_2 \\
& + 444 \alpha_1 \alpha_3^6 \alpha_2 - 132 \alpha_1 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^5 \\
& + 120 \alpha_1^3 \alpha_3^2 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \\
& + 28 \alpha_1^3 \alpha_3 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& - 48 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 \alpha_2 \\
& - 1212 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^5 \alpha_3 \\
& - 540 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^3 - 2284 \alpha_3^4 \alpha_2^4 - 1680 \alpha_2^7 \alpha_3 \\
& - 2196 \alpha_3^3 \alpha_2^5 - 636 \alpha_3^5 \alpha_2^3 + 96 \alpha_2 \alpha_3^4 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 2976 \alpha_3^2 \alpha_2^6 - 529 \alpha_3^6 \alpha_2^2 - 48 \alpha_3^7 \alpha_2 \\
& + 1392 \alpha_1 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \alpha_3^2 \\
& + 1774 \alpha_1 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_3^3 \\
& + 1642 \alpha_1 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \alpha_3 \\
& - 1387 \alpha_1^2 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \alpha_2^2 \\
& + 348 \alpha_1 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2 \\
& - 756 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^3 \alpha_2^2 \\
& + 984 \alpha_2^3 \alpha_3^2 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 696 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \alpha_2 \alpha_3^3 - 48 \alpha_1^5 \alpha_2^3 - 176 \alpha_1^6 \alpha_3^2 \\
& - 1106 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^2 \alpha_3^3 - 16 \alpha_1^6 \alpha_2^2 \\
& - 1895 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^4 \alpha_2 \\
& - 200 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^4 \alpha_3 \\
& + 96 \sqrt{(4\alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2\alpha_1\alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^2 \alpha_2^3
\end{aligned}$$

$$\begin{aligned}
& + 842 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^3 \alpha_3^2 \\
& + 845 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^4 \alpha_1 \\
& - 32 \alpha_1^5 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 1680 \alpha_2^5 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 64 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^5 + 32 \alpha_1^7 \alpha_3 + 1680 \alpha_1 \alpha_2^7 + 369 \alpha_1 \alpha_3^7 \\
& + 96 \alpha_1^6 \alpha_3 \alpha_2 + 48 \alpha_1^3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^3 \\
& + 888 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1^2 \alpha_2 \alpha_3^2 \\
& + 2701 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_1 \alpha_3^2 \\
& - 1859 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \alpha_1^2 \alpha_3 \\
& - 2280 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_1 \alpha_3 \alpha_2^3 \\
& - 96 \alpha_1^4 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \beta^2 / ( \\
& \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} (25 \alpha_1^3 + 12 \alpha_1^3 \alpha_2 - 25 \alpha_3^3 - 9 \alpha_3^4 - 100 \alpha_2^2 \alpha_3 \\
& + 7 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 48 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} - 3 \alpha_1^3 \alpha_3 - 15 \alpha_1^2 \alpha_3^2 + 16 \alpha_1^2 \alpha_2^2 \\
& + 23 \alpha_1 \alpha_3^3 - 36 \alpha_3^2 \alpha_2^2 + 20 \alpha_2^2 \alpha_1 \alpha_3 + 4 \alpha_1^4 - 48 \alpha_2^3 \alpha_3 - 12 \alpha_2 \alpha_3^3 + 75 \alpha_3^2 \alpha_1 \\
& - 75 \alpha_1^2 \alpha_3 + 100 \alpha_1 \alpha_2^2 + 36 \alpha_1 \alpha_2 \alpha_3^2 + 48 \alpha_1 \alpha_2^3 - 36 \alpha_1^2 \alpha_2 \alpha_3 \\
& - 12 \alpha_1 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2 \\
& - 12 \alpha_3 \alpha_2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& + 13 \alpha_1 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 26 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_2^2 \\
& - 9 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \alpha_3^2 \\
& - 4 \alpha_1^2 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} \\
& - 7 \alpha_3 \sqrt{(4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3)(\alpha_1 - \alpha_3)^2} (4 \alpha_2^2 + \alpha_1^2 + \alpha_3^2 - 2 \alpha_1 \alpha_3) \\
& (4 \alpha_1^2 - 17 \alpha_1 \alpha_3 + 4 \alpha_3^2 + 25 \alpha_2^2)(\alpha_1^2 \alpha_3^2 - 2 \alpha_2^2 \alpha_1 \alpha_3 + \alpha_2^4) \Big]
\end{aligned}$$

$$[ \text{Dx1} = \text{LK3}[1] * x1^2 + \text{LK3}[2] * x1 * x2 + 0$$

$$[ \text{Dx2} = 0 + \text{LK4}[2] * x1 * x2 + \text{LK4}[3] * x2^2$$

[ >



