No.	expression
1	1

表 2 rank 1

No.	expression
2	Z
3	-Y
4	X

表 3 rank 2

No.	expression
5	$-\frac{X^2}{2} - \frac{Y^2}{2} + Z^2$
6	$\sqrt{3}XZ$
7	$\sqrt{3}YZ$
8	$\frac{\sqrt{3}(X-Y)(X+Y)}{2}$
9	$-\sqrt{3}XY$

表 4 rank 3

No.	expression
10	$\frac{\sqrt{10}Y\left(3X^2-Y^2\right)}{4}$
11	$-\frac{Z(3X^2+3Y^2-2Z^2)}{2}$
12	$\frac{\sqrt{10}X\left(X^2-3Y^2\right)}{4}$
13	$\frac{\sqrt{6}Y(X^2+Y^2-4Z^2)}{4}$
14	$-\frac{\sqrt{6}X(X^2+Y^2-4Z^2)}{4}$
15	$\sqrt{15}XYZ$
16	$\frac{\sqrt{15}Z(X-Y)(X+Y)}{2}$

表 5 rank 4

No.	expression
17	$\frac{3X^4}{8} + \frac{3X^2Y^2}{4} - 3X^2Z^2 + \frac{3Y^4}{8} - 3Y^2Z^2 + Z^4$
18	$\frac{\sqrt{70}XZ\left(X^2 - 3Y^2\right)}{4}$
19	$\frac{\sqrt{70}YZ(3X^2 - Y^2)}{4}$
20	$-\frac{\sqrt{10}XZ(3X^2+3Y^2-4Z^2)}{4}$
21	$-\frac{\sqrt{10}YZ\left(3X^2+3Y^2-4Z^2\right)}{4}$
22	$\frac{\sqrt{35} \left(X^2 - 2XY - Y^2\right) \left(X^2 + 2XY - Y^2\right)}{8}$
23	$\frac{\sqrt{35}XY(X-Y)(X+Y)}{2}$
24	$-\frac{\sqrt{5}(X-Y)(X+Y)(X^2+Y^2-6Z^2)}{4}$
25	$\frac{\sqrt{5}XY(X^2+Y^2-6Z^2)}{2}$

表 6 rank 5

No.	expression
26	$-\frac{\sqrt{70}Y(3X^2-Y^2)(X^2+Y^2-8Z^2)}{16}$
27	$\frac{Z\left(15X^4+30X^2Y^2-40X^2Z^2+15Y^4-40Y^2Z^2+8Z^4\right)}{8}$
28	$-\frac{\sqrt{70}X(X^2-3Y^2)(X^2+Y^2-8Z^2)}{16}$
29	$\frac{3\sqrt{14}Y(5X^4 - 10X^2Y^2 + Y^4)}{16}$
30	$\frac{3\sqrt{14}X(X^4-10X^2Y^2+5Y^4)}{16}$
31	$-\frac{\sqrt{15}Y(X^4+2X^2Y^2-12X^2Z^2+Y^4-12Y^2Z^2+8Z^4)}{2}$
32	$\frac{\sqrt{15}X(X^4+2X^2Y^2-12X^2Z^2+Y^4-12Y^2Z^2+8Z^4)}{\sqrt{15}X(X^4+2X^2Y^2-12X^2Z^2+Y^4-12Y^2Z^2+8Z^4)}$
33	$-\frac{3\sqrt{35}XYZ(X-Y)(X+Y)}{2}$
34	$\frac{2}{3\sqrt{35}Z(X^2-2XY-Y^2)(X^2+2XY-Y^2)}$
	$-\frac{\sqrt{105}XYZ(X^2+Y^2-2Z^2)}{2}$
35	$-\frac{2}{\sqrt{105}Z(X-Y)(X+Y)(X^2+Y^2-2Z^2)}$
36	4

```
No. expression
        -\frac{5X^6}{16} - \frac{15X^4Y^2}{16} + \frac{45X^4Z^2}{8} - \frac{15X^2Y^4}{16} + \frac{45X^2Y^2Z^2}{4} - \frac{15X^2Z^4}{2} - \frac{5Y^6}{16} + \frac{45Y^4Z^2}{8} - \frac{15Y^2Z^4}{2} + Z^6
          \sqrt{462}(X-Y)(X+Y)(X^2-4XY+Y^2)(X^2+4XY+Y^2)
             \frac{\sqrt{210}XZ(X^2-3Y^2)(3X^2+3Y^2-8Z^2)}{16}
 39
          \sqrt{462}XY(X^2-3Y^2)(3X^2-Y^2)
            \frac{\frac{462XY(X-3x)}{16}}{-\frac{\sqrt{210}YZ(3X^2-Y^2)(3X^2+3Y^2-8Z^2)}{16}}
 40
 41
          3\sqrt{154}XZ(X^4-10X^2Y^2+5Y^4)
             3\sqrt{154}YZ(5X^4-10X^2Y^2+Y^4)
 43
          \sqrt{21}XZ(5X^4+10X^2Y^2-20X^2Z^2+5Y^4-20Y^2Z^2+8Z^4)
 44
           \sqrt{21}YZ(5X^4+10X^2Y^2-20X^2Z^2+5Y^4-20Y^2Z^2+8Z^4)
             \frac{3\sqrt{7}\left(X^2\!+\!Y^2\!-\!10Z^2\right)\!\left(X^2\!-\!2XY\!-\!Y^2\right)\!\left(X^2\!+\!2XY\!-\!Y^2\right)}{}
             3\sqrt{7}XY(X-Y)(X+Y)(X^2+Y^2-10Z^2)
 47
           \sqrt{210}(X-Y)(X+Y) \left(X^4 + 2X^2Y^2 - 16X^2Z^2 + Y^4 - 16Y^2Z^2 + 16Z^4\right)
             \frac{32}{\sqrt{210}XY\left(X^4+2X^2Y^2-16X^2Z^2+Y^4-16Y^2Z^2+16Z^4\right)}
 49
```

表 8 rank 7

No.	expression
50	$\frac{\sqrt{6006}XYZ(X^2-3Y^2)(3X^2-Y^2)}{16}$
51	$\frac{\sqrt{21}Y(3X^2-Y^2)(3X^4+6X^2Y^2-60X^2Z^2+3Y^4-60Y^2Z^2+80Z^4)}{22}$
52	$-\frac{Z \left(35 X^{6}+105 X^{4} Y^{2}-210 X^{4} Z^{2}+105 X^{2} Y^{4}-420 X^{2} Y^{2} Z^{2}+168 X^{2} Z^{4}+35 Y^{6}-210 Y^{4} Z^{2}+168 Y^{2} Z^{4}-16 Z^{6}\right)}{16 X^{6}+105 X^{4} Y^{2}-210 X^{4} Z^{2}+105 X^{2} Y^{4}-420 X^{2} Y^{2} Z^{2}+168 X^{2} Z^{4}+35 Y^{6}-210 Y^{4} Z^{2}+168 Y^{2} Z^{4}-16 Z^{6}\right)}$
53	$\frac{\sqrt{6006}Z(X-Y)(X+Y)(X^2-4XY+Y^2)(X^2+4XY+Y^2)}{(X^2+4XY+Y^2)}$
54	$\frac{32}{\sqrt{21}X(X^2 - 3Y^2)(3X^4 + 6X^2Y^2 - 60X^2Z^2 + 3Y^4 - 60Y^2Z^2 + 80Z^4)}$
55	
56	$\frac{32}{\sqrt{429}X\left(X^6 - 21X^4Y^2 + 35X^2Y^4 - 7Y^6\right)}$
	$-\frac{32}{\sqrt{231}Y\left(X^2+Y^2-12Z^2\right)\left(5X^4-10X^2Y^2+Y^4\right)}$
57	$-\frac{32}{\sqrt{231}X(X^2+Y^2-12Z^2)(X^4-10X^2Y^2+5Y^4)}$
58	$-\frac{7}{32}\sqrt{7}Y\left(5X^{6}+15X^{4}Y^{2}-120X^{4}Z^{2}+15X^{2}Y^{4}-240X^{2}Y^{2}Z^{2}+240X^{2}Z^{4}+5Y^{6}-120Y^{4}Z^{2}+240Y^{2}Z^{4}-64Z^{6}\right)$
59	32
60	$-\frac{\sqrt{7}X \left(5 X^6+15 X^4 Y^2-120 X^4 Z^2+15 X^2 Y^4-240 X^2 Y^2 Z^2+240 X^2 Z^4+5 Y^6-120 Y^4 Z^2+240 Y^2 Z^4-64 Z^6\right)}{32}$
61	$\frac{\sqrt{231}XYZ(X-Y)(X+Y)(3X^2+3Y^2-10Z^2)}{4}$
62	$-\frac{\sqrt{231}Z\big(X^2-2XY-Y^2\big)\big(X^2+2XY-Y^2\big)\big(3X^2+3Y^2-10Z^2\big)}{16}$
63	$ \frac{16}{\sqrt{42}XYZ\left(15X^4 + 30X^2Y^2 - 80X^2Z^2 + 15Y^4 - 80Y^2Z^2 + 48Z^4\right)} $
	$\frac{16}{\sqrt{42}Z(X-Y)(X+Y)\left(15X^4+30X^2Y^2-80X^2Z^2+15Y^4-80Y^2Z^2+48Z^4\right)}$
64	32

表 9 rank 8

```
No. expression
                                           \frac{35X^8}{128} + \frac{35X^6Y^2}{32} - \frac{35X^6Z^2}{4} + \frac{105X^4Y^4}{64} - \frac{105X^4Y^2Z^2}{4} + \frac{105X^4Z^4}{4} + \frac{35X^2Y^6}{32} - \frac{105X^2Y^4Z^2}{4} + \frac{105X^2Y^2Z^4}{2} - 14X^2Z^6 + \frac{35Y^8}{128} - \frac{35Y^6Z^2}{4} + \frac{105Y^4Z^4}{4} - 14Y^2Z^6 + Z^8 - \frac{105X^2Y^4Z^2}{4} - \frac{105X^2Y^4Z^2}{4} - \frac{105X^2Y^2Z^4}{4} - \frac{105X^2Y^2Z^4}{4} - \frac{105X^2Y^2Z^4}{4} - \frac{105Y^4Z^4}{4} -
    65
       66
                                                 \frac{\sqrt{1155}XZ{\left(X^2-3Y^2\right)}{\left(3X^4+6X^2Y^2-20X^2Z^2+3Y^4-20Y^2Z^2+16Z^4\right)}}{32}
    67
                                                            \frac{\sqrt{858}XY(X^2-3Y^2)(3X^2-Y^2)(X^2+Y^2-14Z^2)}{32}
    68
                                               \frac{\sqrt{1155}YZ\big(3X^2-Y^2\big)\big(3X^4+6X^2Y^2-20X^2Z^2+3Y^4-20Y^2Z^2+16Z^4\big)}{32}
    69

\frac{32}{3\sqrt{715}XZ\left(X^{6}-21X^{4}Y^{2}+35X^{2}Y^{4}-7Y^{6}\right)}}
\frac{32}{3\sqrt{715}YZ\left(7X^{6}-35X^{4}Y^{2}+21X^{2}Y^{4}-Y^{6}\right)}}
\frac{32}{32}

-\frac{3\sqrt{1001}XZ\left(X^{2}+Y^{2}-4Z^{2}\right)\left(X^{4}-10X^{2}Y^{2}+5Y^{4}\right)}{32}}{32}
\frac{3\sqrt{1001}YZ\left(X^{2}+Y^{2}-4Z^{2}\right)\left(5X^{4}-10X^{2}Y^{2}+Y^{4}\right)}{32}
\frac{32}{32}
\frac{3\sqrt{1001}YZ\left(X^{2}+Y^{2}-4Z^{2}\right)\left(5X^{4}-10X^{2}Y^{2}+Y^{4}\right)}{32}
\frac{32}{32}
\frac{32}{
    70
       71
       72
        73
                                                        -\frac{3XZ \left(35X^{6}+105X^{4}Y^{2}-280X^{4}Z^{2}+105X^{2}Y^{4}-560X^{2}Y^{2}Z^{2}+336X^{2}Z^{4}+35Y^{6}-280Y^{4}Z^{2}+336Y^{2}Z^{4}-64Z^{6}\right)}{32}
       74
                                                        \frac{3YZ \Big(35X^6 + 105X^4Y^2 - 280X^4Z^2 + 105X^2Y^4 - 560X^2Y^2Z^2 + 336X^2Z^4 + 35Y^6 - 280Y^4Z^2 + 336Y^2Z^4 - 64Z^6\Big)}{32}
       75
                                              \frac{3\sqrt{715}\left(X^4 - 4X^3Y - 6X^2Y^2 + 4XY^3 + Y^4\right)\left(X^4 + 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right)}{128} - \frac{3\sqrt{715}XY(X - Y)(X + Y)\left(X^2 - 2XY - Y^2\right)\left(X^2 + 2XY - Y^2\right)}{16}
        76
       77
                                               \frac{3\sqrt{77} \left(X^2 - 2XY - Y^2\right) \left(X^2 + 2XY - Y^2\right) \left(X^4 + 2X^2Y^2 - 24X^2Z^2 + Y^4 - 24Y^2Z^2 + 40Z^4\right)}{64}
        78
                                               \frac{3\sqrt{77}XY(X-Y)(X+Y)\Big(X^4+2X^2Y^2-24X^2Z^2+Y^4-24Y^2Z^2+40Z^4\Big)}{16}
       79
                                                          \frac{3\sqrt{70}(X-Y)(X+Y)\left(X^{6}+3X^{4}Y^{2}-30X^{4}Z^{2}+3X^{2}Y^{4}-60X^{2}Y^{2}Z^{2}+80X^{2}Z^{4}+Y^{6}-30Y^{4}Z^{2}+80Y^{2}Z^{4}-32Z^{6}\right)}{64}
                                               \frac{3\sqrt{70}XY \Big(X^6 + 3X^4Y^2 - 30X^4Z^2 + 3X^2Y^4 - 60X^2Y^2Z^2 + 80X^2Z^4 + Y^6 - 30Y^4Z^2 + 80Y^2Z^4 - 32Z^6\Big)}{32}
    81
```

表 10 rank 9

```
expression
No.
            \sqrt{4290}XYZ(X^2-3Y^2)(3X^2-Y^2)(3X^2+3Y^2-14Z^2)
82
          \sqrt{24310}Y(3X^2-Y^2)(3X^6-27X^4Y^2+33X^2Y^4-Y^6)
             \sqrt{2310}Y \left(3 X^2-Y^2\right) \left(X^6+3 X^4 Y^2-36 X^4 Z^2+3 X^2 Y^4-72 X^2 Y^2 Z^2+120 X^2 Z^4+Y^6-36 Y^4 Z^2+120 Y^2 Z^4-64 Z^6\right)
          Z\left(315X^8 + 1260X^6Y^2 - 3360X^6Z^2 + 1890X^4Y^4 - 10080X^4Y^2Z^2 + 6048X^4Z^4 + 1260X^2Y^6 - 10080X^2Y^4Z^2 + 12096X^2Y^2Z^4 - 2304X^2Z^6 + 315Y^8 - 3360Y^6Z^2 + 6048Y^4Z^4 - 2304Y^2Z^6 + 128Z^8\right)
 85
             \sqrt{4290}Z(X-Y)(X+Y)\left(X^2-4XY+Y^2\right)\left(X^2+4XY+Y^2\right)\left(3X^2+3Y^2-14Z^2\right)
 86
          \sqrt{24310}X(X^2-3Y^2)(X^6-33X^4Y^2+27X^2Y^4-3Y^6)
87
            \frac{250105(X^{2}-31)(X^{2}-31)(X^{2}-31)}{256}\sqrt{2310}X(X^{2}-3Y^{2})(X^{6}+3X^{4}Y^{2}-36X^{4}Z^{2}+3X^{2}Y^{4}-72X^{2}Y^{2}Z^{2}+120X^{2}Z^{4}+Y^{6}-36Y^{4}Z^{2}+120Y^{2}Z^{4}-64Z^{6})
         3\sqrt{1430}Y\left(X^2+Y^2-16Z^2\right)\left(7X^6-35X^4Y^2+21X^2Y^4-Y^6\right)
89
            3\sqrt{1430}X(X^2+Y^2-16Z^2)(X^6-21X^4Y^2+35X^2Y^4-7Y^6)
90
          3\sqrt{286}Y\left(5X^4-10X^2Y^2+Y^4\right)\left(X^4+2X^2Y^2-28X^2Z^2+Y^4-28Y^2Z^2+56Z^4\right)
91
          3\sqrt{286}X \Big(X^4 - 10X^2Y^2 + 5Y^4\Big) \Big(X^4 + 2X^2Y^2 - 28X^2Z^2 + Y^4 - 28Y^2Z^2 + 56Z^4\Big)
92
            3\sqrt{5}Y \left(7X^8 + 28X^6Y^2 - 280X^6Z^2 + 42X^4Y^4 - 840X^4Y^2Z^2 + 1120X^4Z^4 + 28X^2Y^6 - 840X^2Y^4Z^2 + 2240X^2Y^2Z^4 - 896X^2Z^6 + 7Y^8 - 280Y^6Z^2 + 1120Y^4Z^4 - 896Y^2Z^6 + 128Z^8\right)
93
         3\sqrt{5}X\left(7X^8 + 28X^6Y^2 - 280X^6Z^2 + 42X^4Y^4 - 840X^4Y^2Z^2 + 1120X^4Z^4 + 28X^2Y^6 - 840X^2Y^4Z^2 + 2240X^2Y^2Z^4 - 896X^2Z^6 + 7Y^8 - 280Y^6Z^2 + 1120Y^4Z^4 - 896Y^2Z^6 + 128Z^8\right)
94
          3\sqrt{12155}XYZ(X-Y)(X+Y)(X^2-2XY-Y^2)(X^2+2XY-Y^2)
95
         3\sqrt{12155}Z\left(X^4-4X^3Y-6X^2Y^2+4XY^3+Y^4\right)\left(X^4+4X^3Y-6X^2Y^2-4XY^3+Y^4\right)
96
            3\sqrt{5005}XYZ(X-Y)(X+Y)(X^4+2X^2Y^2-8X^2Z^2+Y^4-8Y^2Z^2+8Z^4)
97
         \frac{3\sqrt{5005}Z \Big(X^2-2XY-Y^2\Big) \Big(X^2+2XY-Y^2\Big) \Big(X^4+2X^2Y^2-8X^2Z^2+Y^4-8Y^2Z^2+8Z^4\Big)}{64}
            3\sqrt{110}XYZ \left(7X^{6} + 21X^{4}Y^{2} - 70X^{4}Z^{2} + 21X^{2}Y^{4} - 140X^{2}Y^{2}Z^{2} + 112X^{2}Z^{4} + 7Y^{6} - 70Y^{4}Z^{2} + 112Y^{2}Z^{4} - 32Z^{6}\right)
99
            3\sqrt{110}Z(X-Y)(X+Y)\left(7X^{6}+21X^{4}Y^{2}-70X^{4}Z^{2}+21X^{2}Y^{4}-140X^{2}Y^{2}Z^{2}+112X^{2}Z^{4}+7Y^{6}-70Y^{4}Z^{2}+112Y^{2}Z^{4}-32Z^{6}\right)
100
```

```
No.
                    expression
                              -\frac{63X^{10}}{256} - \frac{315X^8Y^2}{256} + \frac{1575X^8Z^2}{128} - \frac{315X^6Y^4}{128} + \frac{1575X^6Y^2Z^2}{128} - \frac{525X^6Z^4}{32} - \frac{525X^6Z^4}{64} - \frac{315X^4Y^6}{64} - \frac{1575X^4Y^2Z^4}{8} + \frac{315X^4Z^6}{4256} + \frac{315X^2Y^8}{32} - \frac{1575X^2Y^4Z^4}{8} + \frac{315X^2Y^2Z^6}{256} - \frac{45X^2Z^8}{256} - \frac{63Y^{10}}{256} + \frac{1575Y^8Z^2}{128} - \frac{525Y^6Z^4}{8} + \frac{315Y^4Z^6}{44} - \frac{45Y^2Z^8}{2} + Z^{10} - \frac{1575X^4Y^4Z^4}{256} - \frac{1575X^4Y^4Z^4}{256}
                            \sqrt{4290}(X-Y)(X+Y)\left(X^2-4XY+Y^2\right)\left(X^2+4XY+Y^2\right)\left(3X^4+6X^2Y^2-96X^2Z^2+3Y^4-96Y^2Z^2+224Z^4\right)
                             \sqrt{461890}XZ(X^2-3Y^2)(X^6-33X^4Y^2+27X^2Y^4-3Y^6)
103
                               \frac{\sqrt{4290}XZ\left(X^2-3Y^2\right)\left(7X^6+21X^4Y^2-84X^4Z^2+21X^2Y^4-168X^2Y^2Z^2+168X^2Z^4+7Y^6-84Y^4Z^2+168Y^2Z^4-64Z^6\right)}{128}
 104
                             \frac{\sqrt{4290}XY\left(X^2-3Y^2\right)\left(3X^2-Y^2\right)\left(3X^4+6X^2Y^2-96X^2Z^2+3Y^4-96Y^2Z^2+224Z^4\right)}{256}
 105
                              \frac{\sqrt{461890}YZ(3X^2-Y^2)(3X^6-27X^4Y^2+33X^2Y^4-Y^6)}{256}
 106
                                \frac{\sqrt{4290}YZ\big(3X^2-Y^2\big)\big(7X^6+21X^4Y^2-84X^4Z^2+21X^2Y^4-168X^2Y^2Z^2+168X^2Z^4+7Y^6-84Y^4Z^2+168Y^2Z^4-64Z^6\big)}{128}
 107
                                 \frac{\sqrt{72930}XZ\left(3X^2+3Y^2-16Z^2\right)\left(X^6-21X^4Y^2+35X^2Y^4-7Y^6\right)}{256}
108
                                  \sqrt{72930}YZ(3X^2+3Y^2-16Z^2)(7X^6-35X^4Y^2+21X^2Y^4-Y^6)
  109
                              \sqrt{858}XZ \Big(X^4 - 10X^2Y^2 + 5Y^4\Big) \Big(15X^4 + 30X^2Y^2 - 140X^2Z^2 + 15Y^4 - 140Y^2Z^2 + 168Z^4\Big)
110
                                 \frac{\sqrt{858}YZ \left(5 X^4-10 X^2 Y^2+Y^4\right) \left(15 X^4+30 X^2 Y^2-140 X^2 Z^2+15 Y^4-140 Y^2 Z^2+168 Z^4\right)}{128}
111
                              \sqrt{55}XZ\Big(63X^{8} + 252X^{6}Y^{2} - 840X^{6}Z^{2} + 378X^{4}Y^{4} - 2520X^{4}Y^{2}Z^{2} + 2016X^{4}Z^{4} + 252X^{2}Y^{6} - 2520X^{2}Y^{4}Z^{2} + 4032X^{2}Y^{2}Z^{4} - 1152X^{2}Z^{6} + 63Y^{8} - 840Y^{6}Z^{2} + 2016Y^{4}Z^{4} - 1152Y^{2}Z^{6} + 128Z^{8}\Big)
112
                              \sqrt{55}YZ\left(63X^8 + 252X^6Y^2 - 840X^6Z^2 + 378X^4Y^4 - 2520X^4Y^2Z^2 + 2016X^4Z^4 + 252X^2Y^6 - 2520X^2Y^4Z^2 + 4032X^2Y^2Z^4 - 1152X^2Z^6 + 63Y^8 - 840Y^6Z^2 + 2016Y^4Z^4 - 1152Y^2Z^6 + 128Z^8\right)
113
                             \sqrt{92378}(X-Y)(X+Y)\left(X^4-4X^3Y-14X^2Y^2-4XY^3+Y^4\right)\left(X^4+4X^3Y-14X^2Y^2+4XY^3+Y^4\right)
114
                            \frac{\sqrt{92378}XY(X^4 - 10X^2Y^2 + 5Y^4)(5X^4 - 10X^2Y^2 + Y^4)}{256}
115
                                 \frac{\sqrt{12155} \left(X^2 + Y^2 - 18Z^2\right) \left(X^4 - 4X^3Y - 6X^2Y^2 + 4XY^3 + Y^4\right) \left(X^4 + 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right)}{2X^2 - 2X^2} \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 6X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 4X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 4X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^3Y - 4X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^2Y - 4X^2Y^2 - 4XY^3 + Y^4\right) \left(X^4 - 4X^2Y^2 - 4XY^3 - Y^4\right) \left(X^4 - 4X^2Y - 4X^2Y^2 - 4XY^3 - Y^4\right) \left(X^4 - 4X^2Y - 4X^2Y^2 - 4XY^3 - Y^4\right) \left(X^4 - 4X^2Y - 4X^2Y^2 - 4XY^3 - Y^4\right) \left(X^4 - 4X^2Y - 4X^2Y^2 - 4XY^3 - Y^4\right) \left(X^4 - 4X^2Y^2 - 4XY^3 - Y^4\right) \left(X^4 - 4X^2Y^2 - 4XY^3 - Y^4\right) \left(X^4 - 4X^4 - X^4\right) \left(X^4 
116
                              \sqrt{12155}XY(X-Y)(X+Y)\left(X^2+Y^2-18Z^2\right)\left(X^2-2XY-Y^2\right)\left(X^2+2XY-Y^2\right)}
117
                                 \frac{\sqrt{2145} \left(X^2 - 2XY - Y^2\right) \left(X^2 + 2XY - Y^2\right) \left(X^6 + 3X^4Y^2 - 42X^4Z^2 + 3X^2Y^4 - 84X^2Y^2Z^2 + 168X^2Z^4 + Y^6 - 42Y^4Z^2 + 168Y^2Z^4 - 112Z^6\right)}{128}
118
                                 \frac{\sqrt{2145}XY(X-Y)(X+Y)\left(X^6+3X^4Y^2-42X^4Z^2+3X^2Y^4-84X^2Y^2Z^2+168X^2Z^4+Y^6-42Y^4Z^2+168Y^2Z^4-112Z^6\right)}{2X^6+3X^4Y^2-42X^4Z^2+3X^2Y^4-84X^2Y^2Z^2+168X^2Z^4+Y^6-42Y^4Z^2+168Y^2Z^4-112Z^6\right)}
 119
                              \sqrt{165}(X-Y)(X+Y)\left(7X^8+28X^6Y^2-336X^6Z^2+42X^4Y^4-1008X^4Y^2Z^2+1680X^4Z^4+28X^2Y^6-1008X^2Y^4Z^2+3360X^2Y^2Z^4-1792X^2Z^6+7Y^8-336Y^6Z^2+1680Y^4Z^4-1792Y^2Z^6+384Z^8\right)
 120
                                  \sqrt{165}XY \left(7X^8 + 28X^6Y^2 - 336X^6Z^2 + 42X^4Y^4 - 1008X^4Y^2Z^2 + 1680X^4Z^4 + 28X^2Y^6 - 1008X^2Y^4Z^2 + 3360X^2Y^2Z^4 - 1792X^2Z^6 + 7Y^8 - 336Y^6Z^2 + 1680Y^4Z^4 - 1792Y^2Z^6 + 384Z^8\right)
121
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No.
                         expression
                              \sqrt{14586}XYZ(X^2-3Y^2)(3X^2-Y^2)(15X^4+30X^2Y^2-160X^2Z^2+15Y^4-160Y^2Z^2+224Z^4)
 122
                                      \sqrt{46189}Y \Big(3X^2 - Y^2\Big) \Big(X^2 + Y^2 - 20Z^2\Big) \Big(3X^6 - 27X^4Y^2 + 33X^2Y^4 - Y^6\Big)
 123
                               \sqrt{30030}Y \left(3X^2 - Y^2\right) \left(X^8 + 4X^6Y^2 - 56X^6Z^2 + 6X^4Y^4 - 168X^4Y^2Z^2 + 336X^4Z^4 + 4X^2Y^6 - 168X^2Y^4Z^2 + 672X^2Y^2Z^4 - 448X^2Z^6 + Y^8 - 56Y^6Z^2 + 336Y^4Z^4 - 448Y^2Z^6 + 128Z^8\right) + 24X^6Y^4Z^2 + 24X^6Y^2 + 24X^
 124
                                     Z\left(693X^{10} + 3465X^8Y^2 - 11550X^8Z^2 + 6930X^6Y^4 - 46200X^6Y^2Z^2 + 36960X^6Z^4 + 6930X^4Y^6 - 6930X^4Y^6 - 27410880X^4Y^2Z^4 - 31680X^4Z^6 + 74040Y^2Z^8 - 256Z^{10}\right)
 125
                             \frac{\sqrt{14586}Z(X-Y)(X+Y)\left(X^2-4XY+Y^2\right)\left(X^2+4XY+Y^2\right)\left(15X^4+30X^2Y^2-160X^2Z^2+15Y^4-160Y^2Z^2+224Z^4\right)}{512}X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+22X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2+2X^2X^2X^2+
 126
                                     \frac{\sqrt{46189}X \Big(X^2 - 3Y^2\Big) \Big(X^2 + Y^2 - 20Z^2\Big) \Big(X^6 - 33X^4Y^2 + 27X^2Y^4 - 3Y^6\Big)}{512}
 127
                               \sqrt{30030}X\big(X^2 - 3Y^2\big)\big(X^8 + 4X^6Y^2 - 56X^6Z^2 + 6X^4Y^4 - 168X^4Y^2Z^2 + 336X^4Z^4 + 4X^2Y^6 - 168X^2Y^4Z^2 + 672X^2Y^2Z^4 - 448X^2Z^6 + Y^8 - 56Y^6Z^2 + 336Y^4Z^4 - 448Y^2Z^6 + 128Z^8\big)
 128
                               \sqrt{88179}Y(11X^{10}-165X^8Y^2+462X^6Y^4-330X^4Y^6+55X^2Y^8-Y^{10})
 129
                               \sqrt{88179}X(X^{10}-55X^8Y^2+330X^6Y^4-462X^4Y^6+165X^2Y^8-11Y^{10})
 130
                                                                                                                                         512
                                      \sqrt{36465}Y \left(7 X^6 - 35 X^4 Y^2 + 21 X^2 Y^4 - Y^6\right) \left(X^4 + 2 X^2 Y^2 - 36 X^2 Z^2 + Y^4 - 36 Y^2 Z^2 + 96 Z^4\right)
 131
                               \sqrt{36465}X(X^6-21X^4Y^2+35X^2Y^4-7Y^6)(X^4+2X^2Y^2-36X^2Z^2+Y^4-36Y^2Z^2+96Z^4)
 132
                                                                                                                                                                         512
                                    3\sqrt{143}Y\left(5X^4 - 10X^2Y^2 + Y^4\right)\left(5X^6 + 15X^4Y^2 - 240X^4Z^2 + 15X^2Y^4 - 480X^2Y^2Z^2 + 1120X^2Z^4 + 5Y^6 - 240Y^4Z^2 + 1120Y^2Z^4 - 896Z^6\right)
 133
                                    3\sqrt{143}X\left(X^4 - 10X^2Y^2 + 5Y^4\right)\left(5X^6 + 15X^4Y^2 - 240X^4Z^2 + 15X^2Y^4 - 480X^2Y^2Z^2 + 1120X^2Z^4 + 5Y^6 - 240Y^4Z^2 + 1120Y^2Z^4 - 896Z^6\right)
 134
                               \sqrt{66}Y \left(21X^{10} + 105X^8Y^2 - 1260X^8Z^2 + 210X^6Y^4 - 5040X^6Y^2Z^2 + 8400X^6Z^4 + 210X^4Y^6 - 7560X^4Y^4Z^2 + 25200X^4Y^2Z^4 - 13440X^4Z^6 + 105X^2Y^8 - 5040X^2Y^6Z^2 + 25200X^2Y^4Z^4 - 26880X^2Y^2Z^6 + 5760X^2Z^8 + 21Y^{10} - 1260Y^8Z^2 + 8400Y^6Z^4 - 13440Y^4Z^6 + 5760Y^2Z^8 - 512Z^{10}\right)
 135
                                     \sqrt{66}X(21X^{10} + 105X^8Y^2 - 1260X^8Z^2 + 210X^6Y^4 - 5040X^6Y^2Z^2 + 8400X^6Z^4 + 210X^4Y^6 - 7560X^4Y^4Z^2 + 25200X^4Y^2Z^4 - 13440X^4Z^6 + 105X^2Y^8 - 5040X^2Y^6Z^2 + 25200X^2Y^4Z^4 - 26880X^2Y^2Z^6 + 5760X^2Z^8 + 21Y^{10} - 1260Y^8Z^2 + 8400Y^6Z^4 - 13440Y^4Z^6 + 5760Y^2Z^8 - 512Z^{10}X^2Y^8 - 1240Y^4Z^4 - 12
 136
                                      \sqrt{1939938}XYZ(X^4-10X^2Y^2+5Y^4)(5X^4-10X^2Y^2+Y^4)
 137
                               \sqrt{1939938}Z(X-Y)(X+Y)\left(X^4-4X^3Y-14X^2Y^2-4XY^3+Y^4\right)\left(X^4+4X^3Y-14X^2Y^2+4XY^3+Y^4\right)
 138
                                     \frac{\sqrt{692835}XYZ(X-Y)(X+Y)\left(X^{2}+Y^{2}-6Z^{2}\right)\left(X^{2}-2XY-Y^{2}\right)\left(X^{2}+2XY-Y^{2}\right)}{32}
 139
                                     \frac{\sqrt{692835}Z \Big(X^2+Y^2-6Z^2\Big) \Big(X^4-4X^3Y-6X^2Y^2+4XY^3+Y^4\Big) \Big(X^4+4X^3Y-6X^2Y^2-4XY^3+Y^4\Big)}{256}
 140
                              3\sqrt{1001}XYZ(X-Y)(X+Y)\left(5X^{6}+15X^{4}Y^{2}-70X^{4}Z^{2}+15X^{2}Y^{4}-140X^{2}Y^{2}Z^{2}+168X^{2}Z^{4}+5Y^{6}-70Y^{4}Z^{2}+168Y^{2}Z^{4}-80Z^{6}\right)
 141
                                    3\sqrt{1001}Z\big(X^2 - 2XY - Y^2\big)\big(X^2 + 2XY - Y^2\big)\big(5X^6 + 15X^4Y^2 - 70X^4Z^2 + 15X^2Y^4 - 140X^2Y^2Z^2 + 168X^2Z^4 + 5Y^6 - 70Y^4Z^2 + 168Y^2Z^4 - 80Z^6\big)
 142
                                                                                                                                                                                                                                                                         128
                               \sqrt{2145}XYZ\left(21X^8+84X^6Y^2-336X^6Z^2+126X^4Y^4-1008X^4Y^2Z^2+106X^4Z^4+84X^2Y^6-1008X^2Y^4Z^2+2016X^2Y^2Z^4-768X^2Z^6+21Y^8-336Y^6Z^2+1008Y^4Z^4-768Y^2Z^6+128Z^8\right)
 143
                              \sqrt{2145}Z(X-Y)(X+Y)\left(21X^8+84X^6Y^2-336X^6Z^2+126X^4Y^4-1008X^4Y^2Z^2+1008X^4Z^4+84X^2Y^6-1008X^2Y^4Z^2+2016X^2Y^2Z^4-768X^2Z^6+21Y^8-336Y^6Z^2+1008Y^4Z^4-768Y^2Z^6+128Z^8Y^2Z^6+21Y^8-336Y^6Z^2+1008Y^4Z^4-768Y^2Z^6+128Z^8Y^2Z^6+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^6Z^2+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+1008Y^4Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Y^2Z^4+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126X^2Z^2+126
144
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