表 1
$$\operatorname{rank} 0$$

| No. | expression |
|-----|------------|
| 1 | 1 |

表 2 rank 1

| No. | expression |
|-----|------------|
| 2 | Z |
| 3 | X |
| 4 | Y |

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 | $\frac{\sqrt{3}\left(X^2 - Y^2\right)}{2}$ |
| 9 | $-\sqrt{3}XY$ |
| | |

表 4 rank 3

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

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 | $\frac{\sqrt{10}YZ(-3X^2-3Y^2+4Z^2)}{4}$ |
| 22 | $\frac{\sqrt{35}\left(X^4 - 6X^2Y^2 + Y^4\right)}{8}$ |
| 23 | $\frac{\sqrt{35}XY(X^2-Y^2)}{2}$ |
| 24 | $\frac{\sqrt{5}(-X^2+Y^2)(X^2+Y^2-6Z^2)}{4}$ |
| 25 | $\frac{\sqrt{5}XY(X^2+Y^2-6Z^2)}{2}$ |

表 6 rank 5

| No. | expression |
|-----|---|
| 26 | $\frac{Z\left(15X^4 + 30X^2Y^2 - 40X^2Z^2 + 15Y^4 - 40Y^2Z^2 + 8Z^4\right)}{8}$ |
| 27 | $-\frac{\sqrt{70}Y(3X^2-Y^2)(X^2+Y^2-8Z^2)}{16}$ |
| 28 | $-\frac{\sqrt{70}X(X^2-3Y^2)(X^2+Y^2-8Z^2)}{16}$ |
| 29 | $\frac{3\sqrt{14}X\left(X^4 - 10X^2Y^2 + 5Y^4\right)}{16}$ |
| 30 | $\frac{3\sqrt{14}Y\left(-5X^4+10X^2Y^2-Y^4\right)}{16}$ |
| 31 | $\frac{\sqrt{15}X(X^4+2X^2Y^2-12X^2Z^2+Y^4-12Y^2Z^2+8Z^4)}{8}$ |
| 32 | $\frac{\sqrt{15}Y\left(X^4+2X^2Y^2-12X^2Z^2+Y^4-12Y^2Z^2+8Z^4\right)}{8}$ |
| 33 | $\frac{3\sqrt{35}Z(X^4 - 6X^2Y^2 + Y^4)}{8}$ |
| 34 | $\frac{3\sqrt{35}XYZ(X^2-Y^2)}{2}$ |
| 35 | $\frac{\sqrt{105}Z(-X^2+Y^2)(X^2+Y^2-2Z^2)}{4}$ |
| 36 | $\frac{\sqrt{105}XYZ(X^2+Y^2-2Z^2)}{2}$ |

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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)
 38
         \sqrt{462}XY(X^2-3Y^2)(3X^2-Y^2)
 39
            \sqrt{210}XZ(X^2-3Y^2)(3X^2+3Y^2-8Z^2)
 40
           \sqrt{210}YZ(3X^2-Y^2)(3X^2+3Y^2-8Z^2)
 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)
         3\sqrt{7}(X^2+Y^2-10Z^2)(-X^4+6X^2Y^2-Y^4)
           -\frac{3\sqrt{7}XY(X^2-Y^2)(X^2+Y^2-10Z^2)}{4}
 47
          \sqrt{210} \left(X^2 - Y^2\right) \left(X^4 + 2X^2Y^2 - 16X^2Z^2 + Y^4 - 16Y^2Z^2 + 16Z^4\right)
         \sqrt{210}XY(-X^4-2X^2Y^2+16X^2Z^2-Y^4+16Y^2Z^2-16Z^4)
 49
```

表 8 rank 7

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

表 9 rank 8

| No. | expression |
|-----|--|
| 65 | $\frac{35X^8}{128} + \frac{35X^6Y^2}{32} - \frac{35X^6Z^2}{4} + \frac{105X^4Y^4}{64} - \frac{105X^4Y^2Z^2}{4} + \frac{105X^4Y^2Z^2}{4} + \frac{105X^2Y^2Z^4}{4} + \frac{105X^2Y^2Z^4}{2} - 14X^2Z^6 + \frac{35Y^8}{128} - \frac{35Y^6Z^2}{4} + \frac{105Y^4Z^4}{4} - 14Y^2Z^6 + Z^8$ |
| 66 | $-\frac{\sqrt{858}(X-Y)(X+Y)\left(X^2+Y^2-14Z^2\right)\left(X^2-4XY+Y^2\right)\left(X^2+4XY+Y^2\right)}{64}$ |
| 67 | $-\frac{\sqrt{858}XY\left(X^2-3Y^2\right)\left(3X^2-Y^2\right)\left(X^2+Y^2-14Z^2\right)}{22}$ |
| 68 | $\frac{\sqrt{1155}XZ(X^2-3Y^2)(3X^4+6X^2Y^2-20X^2Z^2+3Y^4-20Y^2Z^2+16Z^4)}{32}$ |
| 69 | $\frac{\sqrt{1155}YZ(3X^2-Y^2)(3X^4+6X^2Y^2-20X^2Z^2+3Y^4-20Y^2Z^2+16Z^4)}{22}$ |
| 70 | $\frac{3\sqrt{715}XZ\left(X^{6}-21X^{4}Y^{2}+35X^{2}Y^{4}-7Y^{6}\right)}{2}$ |
| 71 | $\frac{32}{3\sqrt{715}YZ\left(7X^6 - 35X^4Y^2 + 21X^2Y^4 - Y^6\right)}$ |
| 72 | $\frac{32}{3\sqrt{1001}XZ\left(X^2+Y^2-4Z^2\right)\left(-X^4+10X^2Y^2-5Y^4\right)}$ |
| 73 | $\frac{32}{3\sqrt{1001}YZ\left(X^2+Y^2-4Z^2\right)\left(5X^4-10X^2Y^2+Y^4\right)}$ |
| 74 | $\frac{32}{3XZ\left(-35X^6 - 105X^4Y^2 + 280X^4Z^2 - 105X^2Y^4 + 560X^2Y^2Z^2 - 336X^2Z^4 - 35Y^6 + 280Y^4Z^2 - 336Y^2Z^4 + 64Z^6\right)}{2XZ\left(-35X^6 - 105X^4Y^2 + 280X^4Z^2 - 105X^2Y^4 + 560X^2Y^2Z^2 - 336X^2Z^4 - 35Y^6 + 280Y^4Z^2 - 336Y^2Z^4 + 64Z^6\right)}$ |
| 75 | $\frac{32}{3YZ\left(-35X^6 - 105X^4Y^2 + 280X^4Z^2 - 105X^2Y^4 + 560X^2Y^2Z^2 - 336X^2Z^4 - 35Y^6 + 280Y^4Z^2 - 336Y^2Z^4 + 64Z^6\right)}{2}$ |
| 76 | $\frac{32}{3\sqrt{715}\left(X^8 - 28X^6Y^2 + 70X^4Y^4 - 28X^2Y^6 + Y^8\right)}$ |
| | $\frac{128}{3\sqrt{715}XY(-X^6+7X^4Y^2-7X^2Y^4+Y^6)}$ |
| 77 | $\frac{16}{3\sqrt{77}(X^4 - 6X^2Y^2 + Y^4)(X^4 + 2X^2Y^2 - 24X^2Z^2 + Y^4 - 24Y^2Z^2 + 40Z^4)}$ |
| 78 | $\frac{64}{3\sqrt{77}XY(X^2-Y^2)(X^4+2X^2Y^2-24X^2Z^2+Y^4-24Y^2Z^2+40Z^4)}$ |
| 79 | 16 |
| 80 | $\frac{3\sqrt{70}\left(-X^2+Y^2\right)\left(X^6+3X^4Y^2-30X^4Z^2+3X^2Y^4-60X^2Y^2Z^2+80X^2Z^4+Y^6-30Y^4Z^2+80Y^2Z^4-32Z^6\right)}{64}$ |
| 81 | $\frac{3\sqrt{70}XY\left(X^{6}+3X^{4}Y^{2}-30X^{4}Z^{2}+3X^{2}Y^{4}-60X^{2}Y^{2}Z^{2}+80X^{2}Z^{4}+Y^{6}-30Y^{4}Z^{2}+80Y^{2}Z^{4}-32Z^{6}\right)}{32}$ |

表 10 rank 9

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No.
        expression
            \sqrt{4290}XYZ(X^2-3Y^2)(3X^2-Y^2)(3X^2+3Y^2-14Z^2)
82
          Z\big(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\big)
             \frac{\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)}{}
           \sqrt{24310}Y(3X^2-Y^2)(3X^6-27X^4Y^2+33X^2Y^4-Y^6)
 85
             \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)
86
           \sqrt{24310}X(X^2-3Y^2)(X^6-33X^4Y^2+27X^2Y^4-3Y^6)
87
             \frac{250105(X^2-3Y^2)(X^6-3X^4Y^2-36X^4Z^2+3X^2Y^4-72X^2Y^2Z^2+120X^2Z^4+Y^6-36Y^4Z^2+120Y^2Z^4-64Z^6)}{\sqrt{2310}X(X^2-3Y^2)(X^6+3X^4Y^2-36X^4Z^2+3X^2Y^4-72X^2Y^2Z^2+120X^2Z^4+Y^6-36Y^4Z^2+120Y^2Z^4-64Z^6)}
          3\sqrt{1430}X(X^2+Y^2-16Z^2)(-X^6+21X^4Y^2-35X^2Y^4+7Y^6)
 89
             3\sqrt{1430}Y(X^2+Y^2-16Z^2)(7X^6-35X^4Y^2+21X^2Y^4-Y^6)
90
          3\sqrt{286}X\left(X^4-10X^2Y^2+5Y^4\right)\left(X^4+2X^2Y^2-28X^2Z^2+Y^4-28Y^2Z^2+56Z^4\right)
91
             3\sqrt{286}Y\left(5X^{4}-10X^{2}Y^{2}+Y^{4}\right)\left(X^{4}+2X^{2}Y^{2}-28X^{2}Z^{2}+Y^{4}-28Y^{2}Z^{2}+56Z^{4}\right)
92
          3\sqrt{5}X\left(7X^{8} + 28X^{6}Y^{2} - 280X^{6}Z^{2} + 42X^{4}Y^{4} - 840X^{4}Y^{2}Z^{2} + 1120X^{4}Z^{4} + 28X^{2}Y^{6} - 840X^{2}Y^{4}Z^{2} + 2240X^{2}Y^{2}Z^{4} - 896X^{2}Z^{6} + 7Y^{8} - 280Y^{6}Z^{2} + 1120Y^{4}Z^{4} - 896Y^{2}Z^{6} + 128Z^{8}\right)
93
          3\sqrt{5}Y(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)
94
          3\sqrt{12155}Z\!\left(X^8\!-\!28X^6Y^2\!+\!70X^4Y^4\!-\!28X^2Y^6\!+\!Y^8\right)
95
          3\sqrt{12155}XYZ(-X^6+7X^4Y^2-7X^2Y^4+Y^6)
96
          3\sqrt{5005}Z\big(X^4-6X^2Y^2+Y^4\big)\big(X^4+2X^2Y^2-8X^2Z^2+Y^4-8Y^2Z^2+8Z^4\big)
97
          3\sqrt{5005}XYZ(X^2-Y^2)(X^4+2X^2Y^2-8X^2Z^2+Y^4-8Y^2Z^2+8Z^4)
          3\sqrt{110}Z \left(-X^2+Y^2\right) \left(7X^6+21X^4Y^2-70X^4Z^2+21X^2Y^4-140X^2Y^2Z^2+112X^2Z^4+7Y^6-70Y^4Z^2+112Y^2Z^4-32Z^6\right)
99
          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)
100
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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}
101
                                \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{4290}XY(X^2-3Y^2)(3X^2-Y^2)(3X^4+6X^2Y^2-96X^2Z^2+3Y^4-96Y^2Z^2+224Z^4)
103
                                 \frac{\sqrt{461890}XZ\left(X^{2}-3Y^{2}\right)\left(X^{6}-33X^{4}Y^{2}+27X^{2}Y^{4}-3Y^{6}\right)}{256}
 104
                                     \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)}{2}X^2+2X^4X^4Z^2+2X^4Z^2+2X^4Z^2+2X^2Z^4+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^4Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X^2Z^2+2X
 105
                                  \frac{\sqrt{461890}YZ\left(3X^2-Y^2\right)\left(3X^6-27X^4Y^2+33X^2Y^4-Y^6\right)}{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
                                      \frac{\sqrt{72930}YZ\left(3X^2+3Y^2-16Z^2\right)\left(7X^6-35X^4Y^2+21X^2Y^4-Y^6\right)}{2X^2+3Y^2+3Y^2+21X^2Y^4-Y^6}
  109
                                   \frac{\sqrt{858}XZ\left(X^4-10X^2Y^2+5Y^4\right)\left(15X^4+30X^2Y^2-140X^2Z^2+15Y^4-140Y^2Z^2+168Z^4\right)}{128}
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^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 \Big) + 252X^4Y^4Z^2 + 2016Y^4Z^4 - 1152Y^2Z^6 + 128Z^4Z^4 - 1152X^2Z^6 + 128Z^4Z^4 - 1152Z^4Z^4 - 1152Z^4 - 1152
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} \left( X^{10} - 45X^8Y^2 + 210X^6Y^4 - 210X^4Y^6 + 45X^2Y^8 - Y^{10} \right)
114
                                 \frac{\sqrt{92378}XY(5X^8 - 60X^6Y^2 + 126X^4Y^4 - 60X^2Y^6 + 5Y^8)}{256}
115
                                 \sqrt{12155} \left(X^2 + Y^2 - 18Z^2\right) \left(-X^8 + 28X^6Y^2 - 70X^4Y^4 + 28X^2Y^6 - Y^8\right)
116
                                  \sqrt{12155}XY(X^2+Y^2-18Z^2)(X^6-7X^4Y^2+7X^2Y^4-Y^6)
117
                                 \sqrt{2145}\left(-X^4+6X^2Y^2-Y^4\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)
118
                                      119
                                  \sqrt{165} \left(X^2 - Y^2\right) \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
                              Z\big(693X^{10} + 3465X^8Y^2 - 11550X^8Z^2 + 6930X^6Y^4 - 46200X^6Y^2Z^2 + 36960X^6Z^4 + 6930X^4Y^6 - 6930X^4Y^6Z^2 + 110880X^4Y^2Z^4 - 31680X^4Z^6 + 3465X^2Y^8 - 46200X^2Y^2Z^6 + 7040X^2Z^8 + 693Y^{10} - 11550Y^8Z^2 + 36960Y^6Z^4 - 31680Y^4Z^6 + 7040Y^2Z^8 - 256Z^{10} + 7040Y^2Z^8 - 264Z^{10} + 704Z^{10} + 704Z^{
 123
                        \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)
 124
                               \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)
 125
                        \sqrt{30030}Y(3X^2 - Y^2)(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) + 24X^2Y^4Z^2 + 24X^2Y^2Z^4 - 24X^2Y^2Z^2 - 24X^2Y^2Z^4 - 24X^2Y^2Z^2 - 24X^2Y^2 - 
 126
                               \sqrt{46189}X \left(X^2 - 3Y^2\right) \left(X^2 + Y^2 - 20Z^2\right) \left(X^6 - 33X^4Y^2 + 27X^2Y^4 - 3Y^6\right)
 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}X(X^{10}-55X^8Y^2+330X^6Y^4-462X^4Y^6+165X^2Y^8-11Y^{10})
 129
                         \sqrt{88179}Y\left(-11X^{10}+165X^{8}Y^{2}-462X^{6}Y^{4}+330X^{4}Y^{6}-55X^{2}Y^{8}+Y^{10}\right)
 130
                                                                                                                    512
                         \sqrt{36465}X\left(X^{6}-21X^{4}Y^{2}+35X^{2}Y^{4}-7Y^{6}\right)\left(X^{4}+2X^{2}Y^{2}-36X^{2}Z^{2}+Y^{4}-36Y^{2}Z^{2}+96Z^{4}\right)
 131
                         \sqrt{36465}Y(7X^6 - 35X^4Y^2 + 21X^2Y^4 - Y^6)(X^4 + 2X^2Y^2 - 36X^2Z^2 + Y^4 - 36Y^2Z^2 + 96Z^4)
 132
                                                                                                                                             512
                        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)
 133
                        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)
 134
                        \sqrt{66}X \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}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}Y^2X^2 + 1262Y^2X^2 +
 136
                         \sqrt{1939938}Z(X^{10}-45X^8Y^2+210X^6Y^4-210X^4Y^6+45X^2Y^8-Y^{10})
 137
                                                                                                                512
                         \sqrt{1939938}XYZ(5X^8-60X^6Y^2+126X^4Y^4-60X^2Y^6+5Y^8)
 138
                          \sqrt{692835}Z(X^2+Y^2-6Z^2)(-X^8+28X^6Y^2-70X^4Y^4+28X^2Y^6-Y^8)
 139
                                                                                                                   256
                          \sqrt{692835}XYZ(X^2+Y^2-6Z^2)(X^6-7X^4Y^2+7X^2Y^4-Y^6)
 140
                        3\sqrt{1001}Z\left(-X^4+6X^2Y^2-Y^4\right)\left(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\right)
                              3\sqrt{1001}XYZ\big(X^2-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
                         \sqrt{2145}Z\big(X^2-Y^2\big)\big(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^8\big)
 143
                        \sqrt{2145}XYZ\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^8\right)
144
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