No. 14  $D_{2d}-1$  -4m2 (-4m2 setting) [tetragonal] (polar)

## 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	$\sqrt{3}xy$
7	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
8	$\sqrt{3}xz$
9	$-\sqrt{3}yz$

表 4 rank 3

No.	expression
10	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
11	$\sqrt{15}xyz$
12	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
13	$\frac{x(2x^2-3y^2-3z^2)}{2}$
14	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
15	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
16	$\frac{\sqrt{15}y(x-z)(x+z)}{2}$

表 5 rank 4

No.	expression
17	$\frac{\sqrt{21}\left(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4\right)}{6}$
18	$-\frac{\sqrt{15}\left(x^4-12x^2y^2+6x^2z^2+y^4+6y^2z^2-2z^4\right)}{12}$
19	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
20	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
21	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
22	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
23	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
24	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
25	$-\frac{\sqrt{5}yz\left(6x^2-y^2-z^2\right)}{2}$

表 6 rank 5

20 Tank 9	
No.	expression
26	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
27	$\frac{\sqrt{105}xyz\left(x^2+y^2-2z^2\right)}{2}$
28	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
29	$\frac{z \left(15 x^4+30 x^2 y^2-40 x^2 z^2+15 y^4-40 y^2 z^2+8 z^4\right)}{8}$
30	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
31	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$
32	$\frac{y \left(15 x^4 - 40 x^2 y^2 + 30 x^2 z^2 + 8 y^4 - 40 y^2 z^2 + 15 z^4\right)}{8}$
33	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$
34	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$
35	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$
36	$-\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$

## 表7 rank 6

No. expression 
$$\frac{\sqrt{2} \cdot (2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$$

$$38 \quad -\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$$

$$39 \quad -\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2 - 10z^2)}{4}$$

$$40 \quad \frac{\sqrt{462}xy(x^2 - 3y^2)(3x^2 - y^2)}{16}$$

$$41 \quad \frac{\sqrt{2310}xy(x^4 + 2x^2y^2 - 16x^2z^2 + y^4 - 16y^2z^2 + 16z^4)}{16}$$

$$42 \quad \frac{\sqrt{42}(x-y)(x+y)(x^2 - 3y^2)(x+y)(y-z)(y+z)}{8}$$

$$43 \quad \frac{\sqrt{42}(x-y)(x+y)(x^4 - 9x^2y^2 - 5x^2z^2 + y^4 - 5y^2z^2 + 5z^4)}{8}$$

$$44 \quad \frac{3\sqrt{7}xz(x-z)(x+z)(x^2 - 10y^2 + z^2)}{4}$$

$$45 \quad \frac{3\sqrt{7}yz(y-z)(y+z)(10x^2 - y^2 - z^2)}{4}$$

$$46 \quad \frac{\sqrt{462}xz(x^2 - 3z^2)(3x^2 - z^2)}{16}$$

$$47 \quad -\frac{\sqrt{462}yz(y^2 - 3z^2)(3y^2 - z^2)}{16}$$

$$48 \quad \frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$$

$$49 \quad -\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$$

表 8 rank 7

No.	expression
50	$\frac{\sqrt{6006}z(x-y)(x+y)(x^2-4xy+y^2)(x^2+4xy+y^2)}{32}$
51	$\frac{\sqrt{42}z(x-y)(x+y)\left(15x^4+30x^2y^2-80x^2z^2+15y^4-80y^2z^2+48z^4\right)}{32}$
52	$\frac{\sqrt{91}xyz(3x^4 - 5x^2y^2 - 5x^2z^2 + 3y^4 - 5y^2z^2 + 3z^4)}{2}$
53	$-\frac{\sqrt{77}xyz\left(3x^4-20x^2y^2+10x^2z^2+3y^4+10y^2z^2-6z^4\right)}{4}$
54	$-\frac{\sqrt{231}xyz(x-y)(x+y)\left(3x^{2}+3y^{2}-10z^{2}\right)}{4}$
55	$-\frac{z\left(35x^{6}+105x^{4}y^{2}-210x^{4}z^{2}+105x^{2}y^{4}-420x^{2}y^{2}z^{2}+168x^{2}z^{4}+35y^{6}-210y^{4}z^{2}+168y^{2}z^{4}-16z^{6}\right)}{2}$
56	$-\frac{\sqrt{231}z(x^2-2xy-y^2)(x^2+2xy-y^2)(3x^2+3y^2-10z^2)}{16}$
57	$\frac{x\left(16x^{6} - 168x^{4}y^{2} - 168x^{4}z^{2} + 210x^{2}y^{4} + 420x^{2}y^{2}z^{2} + 210x^{2}z^{4} - 35y^{6} - 105y^{4}z^{2} - 105y^{2}z^{4} - 35z^{6}\right)}{2}$
58	$ \underbrace{ \frac{16}{y \left(35 x^6 - 210 x^4 y^2 + 105 x^4 z^2 + 168 x^2 y^4 - 420 x^2 y^2 z^2 + 105 x^2 z^4 - 16 y^6 + 168 y^4 z^2 - 210 y^2 z^4 + 35 z^6 \right)}_{} $
59	$\frac{\sqrt{231}x(10x^2 - 3y^2 - 3z^2)(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{(y^2 + 2yz - z^2)}$
60	$-\frac{\sqrt{231}y(x^2-2xz-z^2)(x^2+2xz-z^2)(3x^2-10y^2+3z^2)}{16}$
	$\frac{16}{\sqrt{6006}x(y-z)(y+z)\left(y^2-4yz+z^2\right)\left(y^2+4yz+z^2\right)}$
61	* <del>-</del>
62	$\frac{\sqrt{6006}y(x-z)(x+z)(x^2-4xz+z^2)(x^2+4xz+z^2)}{32}$
63	$\frac{\sqrt{42}x(y-z)(y+z)\left(48x^4 - 80x^2y^2 - 80x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4\right)}{32}$
64	$\frac{\sqrt{42}y(x-z)(x+z)\left(15x^4 - 80x^2y^2 + 30x^2z^2 + 48y^4 - 80y^2z^2 + 15z^4\right)}{32}$

表 9 rank 8

No.	expression
65	$\frac{\sqrt{33}\left(x^8 - 14x^6y^2 - 14x^6z^2 + 35x^4y^4 + 35x^4z^4 - 14x^2y^6 - 14x^2z^6 + y^8 - 14y^6z^2 + 35y^4z^4 - 14y^2z^6 + z^8\right)}{2x^8 - 14x^6y^2 - 14x^6z^2 + 35x^4y^4 + 35x^4z^4 - 14x^2y^6 - 14x^2z^6 + y^8 - 14y^6z^2 + 35y^4z^4 - 14y^2z^6 + z^8\right)}{2x^8 - 14x^6y^2 - 14x^6z^2 + 35x^4y^4 + 35x^4z^4 - 14x^2y^6 - 14x^2z^6 + y^8 - 14y^6z^2 + 35y^4z^4 - 14y^2z^6 + z^8\right)}$
66	$\frac{\sqrt{286} \left(x^8 - 14x^6y^2 - 14x^6z^2 + 210x^4y^2z^2 - 14x^2y^6 + 210x^2y^4z^2 - 420x^2y^2z^4 + 28x^2z^6 + y^8 - 14y^6z^2 + 28y^2z^6 - 2z^8\right)}{2x^6 + 210x^2y^4z^2 - 420x^2y^2z^4 + 28x^2z^6 + y^8 - 14y^6z^2 + 28y^2z^6 - 2z^8\right)}$
67	$\frac{\sqrt{210} \left(x^8 - 62 x^6 y^2 + 34 x^6 z^2 + 160 x^4 y^4 - 30 x^4 y^2 z^2 - 80 x^4 z^4 - 62 x^2 y^6 - 30 x^2 y^4 z^2 + 60 x^2 y^2 z^4 + 28 x^2 z^6 + y^8 + 34 y^6 z^2 - 80 y^4 z^4 + 28 y^2 z^6 - 2z^8\right)}{64}$
68	$\frac{3\sqrt{715}xy(x-y)(x+y)(x^2-2xy-y^2)(x^2+2xy-y^2)}{16}$
69	$\frac{3\sqrt{77}xy(x-y)(x+y)\left(x^4+2x^2y^2-24x^2z^2+y^4-24y^2z^2+40z^4\right)}{16}$
70	$-\frac{\sqrt{858}xy(x^2-3y^2)\left(3x^2-y^2\right)\left(x^2+y^2-14z^2\right)}{32}$
71	$-\frac{3\sqrt{70}xy\left(x^6+3x^4y^2-30x^4z^2+3x^2y^4-60x^2y^2z^2+80x^2z^4+y^6-30y^4z^2+80y^2z^4-32z^6\right)}{32}$
72	$-\frac{\sqrt{858}(x-y)(x+y)\left(x^2+y^2-14z^2\right)\left(x^2-4xy+y^2\right)\left(x^2+4xy+y^2\right)}{64}$
73	$-\frac{3\sqrt{70}(x-y)(x+y)\left(x^6+3x^4y^2-30x^4z^2+3x^2y^4-60x^2y^2z^2+80x^2z^4+y^6-30y^4z^2+80y^2z^4-32z^6\right)}{64}$
74	$-\frac{3\sqrt{715}xz(x-z)(x+z)\left(x^2-2xz-z^2\right)\left(x^2+2xz-z^2\right)}{16}$
75	$\frac{3\sqrt{715}yz(y-z)(y+z)(y^2-2yz-z^2)(y^2+2yz-z^2)}{16}$
76	$-\frac{3\sqrt{77}xz(x-z)(x+z)\left(x^4-24x^2y^2+2x^2z^2+40y^4-24y^2z^2+z^4\right)}{16}$
77	$\frac{3\sqrt{77}yz(y-z)(y+z)\left(40x^4-24x^2y^2-24x^2z^2+y^4+2y^2z^2+z^4\right)}{16}$
78	$-\frac{\sqrt{858}xz(x^2-3z^2)(3x^2-z^2)(x^2-14y^2+z^2)}{32}$
79	$-\frac{\sqrt{858}yz\left(y^2-3z^2 ight)\left(3y^2-z^2 ight)\left(14x^2-y^2-z^2 ight)}{32}$
80	$-\frac{3\sqrt{70}xz\left(x^{6}-30x^{4}y^{2}+3x^{4}z^{2}+80x^{2}y^{4}-60x^{2}y^{2}z^{2}+3x^{2}z^{4}-32y^{6}+80y^{4}z^{2}-30y^{2}z^{4}+z^{6}\right)}{22}$
81	$-\frac{3\sqrt{70}yz\left(32x^{6}-80x^{4}y^{2}-80x^{4}z^{2}+30x^{2}y^{4}+60x^{2}y^{2}z^{2}+30x^{2}z^{4}-y^{6}-3y^{4}z^{2}-3y^{2}z^{4}-z^{6}\right)}{32}$

表 10 rank 9

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expression
No.
                        \sqrt{4290}z(x-y)(x+y)(x^2-4xy+y^2)(x^2+4xy+y^2)(3x^2+3y^2-14z^2)
  82
                        3\sqrt{110}z(x-y)(x+y)\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)
  83
                     \sqrt{330}xyz\big(6x^6 - 21x^4y^2 - 21x^4z^2 - 21x^2y^4 + 140x^2y^2z^2 - 21x^2z^4 + 6y^6 - 21y^4z^2 - 21y^2z^4 + 6z^6\big)
                   3\sqrt{1430}xyz\left(x^{6}-7x^{4}z^{2}+7x^{2}z^{4}+y^{6}-7y^{4}z^{2}+7y^{2}z^{4}-2z^{6}\right)
  85
                    \sqrt{510510}xyz(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)
  86
                     \sqrt{4290}xyz(x-y)(x+y)(3x^4-11x^2y^2-7x^2z^2+3y^4-7y^2z^2+7z^4)
  87
                    z \left(315x^{8} + 1260x^{6}y^{2} - 3360x^{6}z^{2} + 1890x^{4}y^{4} - 10080x^{4}y^{2}z^{2} + 6048x^{4}z^{4} + 1260x^{2}y^{6} - 10080x^{2}y^{4}z^{2} + 12096x^{2}y^{2}z^{4} - 2304x^{2}z^{6} + 315y^{8} - 3360y^{6}z^{2} + 6048y^{4}z^{4} - 2304y^{2}z^{6} + 128z^{8}\right)
                   \frac{3\sqrt{12155}z\left(x^{4}-4x^{3}y-6x^{2}y^{2}+4xy^{3}+y^{4}\right)\left(x^{4}+4x^{3}y-6x^{2}y^{2}-4xy^{3}+y^{4}\right)}{2}
  89
                   3\sqrt{5005}z \left(x^2 - 2xy - y^2\right) \left(x^2 + 2xy - y^2\right) \left(x^4 + 2x^2y^2 - 8x^2z^2 + y^4 - 8y^2z^2 + 8z^4\right)
  90
                   x \left(128x^8 - 2304x^6y^2 - 2304x^6z^2 + 6048x^4y^4 + 12096x^4y^2z^2 + 6048x^4z^4 - 3360x^2y^6 - 10080x^2y^4z^2 - 10080x^2y^2z^4 - 3360x^2z^6 + 315y^8 + 1260y^6z^2 + 1890y^4z^4 + 1260y^2z^6 + 315z^8\right)
 91
                   y \left(315x^8 - 3360x^6y^2 + 1260x^6z^2 + 6048x^4y^4 - 10080x^4y^2z^2 + 1890x^4z^4 - 2304x^2y^6 + 12096x^2y^4z^2 - 10080x^2y^2z^4 + 1260x^2z^6 + 128y^8 - 2304y^6z^2 + 6048y^4z^4 - 3360y^2z^6 + 315z^8\right) + 230x^2y^2z^4 + 1260x^2z^6 + 128y^8 - 2304y^6z^2 + 6048y^4z^4 - 3360y^2z^6 + 128y^8 - 2304y^6z^2 + 6048y^4z^4 - 3360y^2z^6 + 128y^8 - 2304y^6z^2 + 128y^6z^2 + 128
 92
                   3\sqrt{12155}x\left(y^4-4y^3z-6y^2z^2+4yz^3+z^4\right)\left(y^4+4y^3z-6y^2z^2-4yz^3+z^4\right)
  93
                   3\sqrt{12155}y\left(x^4 - 4x^3z - 6x^2z^2 + 4xz^3 + z^4\right)\left(x^4 + 4x^3z - 6x^2z^2 - 4xz^3 + z^4\right)
  94
                   3\sqrt{5005}x\left(y^2-2yz-z^2\right)\left(y^2+2yz-z^2\right)\left(8x^4-8x^2y^2-8x^2z^2+y^4+2y^2z^2+z^4\right)
  95
                   3\sqrt{5005}y \left(x^2 - 2xz - z^2\right) \left(x^2 + 2xz - z^2\right) \left(x^4 - 8x^2y^2 + 2x^2z^2 + 8y^4 - 8y^2z^2 + z^4\right)
  96
                    \sqrt{4290}x(y-z)(y+z)\left(14x^{2}-3y^{2}-3z^{2}\right)\left(y^{2}-4yz+z^{2}\right)\left(y^{2}+4yz+z^{2}\right)
  97
                         \sqrt{4290}y(x-z)(x+z)\left(x^2-4xz+z^2\right)\!\left(x^2+4xz+z^2\right)\!\left(3x^2-14y^2+3z^2\right)
  98
                   3\sqrt{110}x(y-z)(y+z)\left(32x^6-112x^4y^2-112x^4z^2+70x^2y^4+140x^2y^2z^2+70x^2z^4-7y^6-21y^4z^2-21y^2z^4-7z^6\right)
  99
                        3\sqrt{110}y(x-z)(x+z)\left(7x^6-70x^4y^2+21x^4z^2+112x^2y^4-140x^2y^2z^2+21x^2z^4-32y^6+112y^4z^2-70y^2z^4+7z^6\right)
100
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No.
               expression
                  \sqrt{390} \cdot \left(2x^{10} - 45x^8y^2 - 45x^8z^2 + 42x^6y^4 + 1008x^6y^2z^2 + 42x^6z^4 + 42x^4y^6 - 1260x^4y^4z^2 - 1260x^4y^2z^4 + 42x^4z^6 - 45x^2y^8 + 1008x^2y^6z^2 - 1260x^2y^4z^4 + 1008x^2y^2z^6 - 45x^2z^8 + 2y^{10} - 45y^8z^2 + 42y^6z^4 + 42y^6z^6 + 45y^2z^8 + 2y^{10} - 45y^8z^2 + 42y^6z^4 + 42y^
101
                      \sqrt{420189} \cdot \left(22x^{10} + 45x^8y^2 - 1035x^8z^2 - 105x^6y^4 - 630x^6y^2z^2 + 4935x^6z^4 - 105x^4y^6 + 3150x^4y^4z^2 - 1575x^4y^2z^4 - 4830x^4z^6 + 45x^2y^8 - 630x^2y^6z^2 - 1575x^2y^4z^4 + 1260x^2y^2z^6 + 990x^2z^8 + 22y^{10} - 1035y^8z^2 + 4935y^6z^4 - 4830y^4z^6 + 990y^2z^8 - 44z^{10}\right)
 102
                      \sqrt{3213210} \cdot \left(3x^{10} - 96x^8y^2 - 39x^8z^2 + 224x^6y^4 + 1344x^6y^2z^2 - 42x^6z^4 + 224x^4y^6 - 6720x^4y^4z^2 + 3360x^4y^2z^4 - 182x^4z^6 - 96x^2y^8 + 1344x^2y^6z^2 + 3360x^2y^4z^4 - 2688x^2y^2z^6 + 135x^2z^8 + 3y^{10} - 39y^8z^2 - 42y^6z^4 - 182y^4z^6 + 135y^2z^8 - 6z^{10}\right)
 103
                      \frac{\sqrt{12155}xy(x-y)(x+y)\Big(x^2+y^2-18z^2\Big)\Big(x^2-2xy-y^2\Big)\Big(x^2+2xy-y^2\Big)}{(x^2+2xy-y^2)^2}
 104
                      \sqrt{2145}xy(x-y)(x+y)\left(x^{6}+3x^{4}y^{2}-42x^{4}z^{2}+3x^{2}y^{4}-84x^{2}y^{2}z^{2}+168x^{2}z^{4}+y^{6}-42y^{4}z^{2}+168y^{2}z^{4}-112z^{6}\right)
 105
                  \sqrt{92378}xy(x^4-10x^2y^2+5y^4)(5x^4-10x^2y^2+y^4)
 106
                  \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)
 107
                  \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)
 108
                  \sqrt{27170}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)\left(3x^4-11x^2y^2-11x^2z^2+3y^4-11y^2z^2+3z^4\right)
 109
                  \sqrt{140063}(x-y)(x+y)\left(22x^8-653x^6y^2-315x^6z^2+2602x^4y^4-945x^4y^2z^2+1575x^4z^4-653x^2y^6-945x^2y^4z^2+3150x^2y^2z^4-1680x^2z^6+22y^8-315y^6z^2+1575y^4z^4-1680y^2z^6+360z^8\right)
 110
                                                                                                                                                                                          11984
                  \sqrt{1071070}(x-y)(x+y)\left(9x^8-165x^6y^2-231x^6z^2-25x^4y^4+3801x^4y^2z^2+406x^4z^4-165x^2y^6+3801x^2y^4z^2-9674x^2y^2z^4+266x^2z^6+9y^8-231y^6z^2+406y^4z^4+266y^2z^6-57z^8\right)
 111
                  \sqrt{12155}xz(x-z)(x+z)\left(x^2-18y^2+z^2\right)\left(x^2-2xz-z^2\right)\left(x^2+2xz-z^2\right)
 112
                  \sqrt{12155}yz(y-z)(y+z)\left(18x^2-y^2-z^2\right)\!\left(y^2-2yz-z^2\right)\!\left(y^2+2yz-z^2\right)
 113
                  \sqrt{2145}xz(x-z)(x+z)\left(x^{6}-42x^{4}y^{2}+3x^{4}z^{2}+168x^{2}y^{4}-84x^{2}y^{2}z^{2}+3x^{2}z^{4}-112y^{6}+168y^{4}z^{2}-42y^{2}z^{4}+z^{6}\right)
 114
                  \sqrt{2145}yz(y-z)(y+z)\left(112x^{6}-168x^{4}y^{2}-168x^{4}z^{2}+42x^{2}y^{4}+84x^{2}y^{2}z^{2}+42x^{2}z^{4}-y^{6}-3y^{4}z^{2}-3y^{2}z^{4}-z^{6}\right)
 115
                  \sqrt{92378}xz\left(x^4-10x^2z^2+5z^4\right)\left(5x^4-10x^2z^2+z^4\right)
 116
                      \sqrt{92378}yz\!\left(y^4\!-\!10y^2z^2\!+\!5z^4\right)\!\left(5y^4\!-\!10y^2z^2\!+\!z^4\right)
 117
                  \sqrt{4290}xz\Big(x^2-3z^2\Big)\Big(3x^2-z^2\Big)\Big(3x^4-96x^2y^2+6x^2z^2+224y^4-96y^2z^2+3z^4\Big)
 118
                     \frac{\sqrt{4290}yz\left(y^2-3z^2\right)\left(3y^2-z^2\right)\left(224x^4-96x^2y^2-96x^2z^2+3y^4+6y^2z^2+3z^4\right)}{2}
 119
                  \sqrt{165}xz\left(7x^8 - 336x^6y^2 + 28x^6z^2 + 1680x^4y^4 - 1008x^4y^2z^2 + 42x^4z^4 - 1792x^2y^6 + 3360x^2y^4z^2 - 1008x^2y^2z^4 + 28x^2z^6 + 384y^8 - 1792y^6z^2 + 1680y^4z^4 - 336y^2z^6 + 7z^8\right)
 120
                      \sqrt{165}yz\left(384x^8 - 1792x^6y^2 - 1792x^6z^2 + 1680x^4y^4 + 3360x^4y^2z^2 + 1680x^4z^4 - 336x^2y^6 - 1008x^2y^4z^2 - 1008x^2y^2z^4 - 336x^2z^6 + 7y^8 + 28y^6z^2 + 42y^4z^4 + 28y^2z^6 + 7z^8\right)
 121
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No.
                    expression
                         \sqrt{1939938}z(x-y)(x+y)(x^4-4x^3y-14x^2y^2-4xy^3+y^4)(x^4+4x^3y-14x^2y^2+4xy^3+y^4)
122
                          \sqrt{14586}z(x-y)(x+y)(x^2-4xy+y^2)(x^2+4xy+y^2)(15x^4+30x^2y^2-160x^2z^2+15y^4-160y^2z^2+224z^4)
123
                         \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^8\right)
124
                          \sqrt{2431}xyz \left(5x^8 - 30x^6y^2 - 30x^6z^2 + 63x^4y^4 + 63x^4z^4 - 30x^2y^6 - 30x^2z^6 + 5y^8 - 30y^6z^2 + 63y^4z^4 - 30y^2z^6 + 5z^8\right)
125
                               \sqrt{230945}xyz\left(x^{8}-6x^{6}y^{2}-6x^{6}z^{2}+42x^{4}y^{2}z^{2}-6x^{2}y^{6}+42x^{2}y^{4}z^{2}-84x^{2}y^{2}z^{4}+12x^{2}z^{6}+y^{8}-6y^{6}z^{2}+12y^{2}z^{6}-2z^{8}\right)
126
                               \sqrt{3003}xyz\left(5x^8 - 150x^6y^2 + 90x^6z^2 + 336x^4y^4 - 70x^4y^2z^2 - 168x^4z^4 - 150x^2y^6 - 70x^2y^4z^2 + 140x^2y^2z^4 + 60x^2z^6 + 5y^8 + 90y^6z^2 - 168y^4z^4 + 60y^2z^6 - 10z^8\right)
127
                                \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)
128
                              3\sqrt{1001}xyz(x-y)(x+y)\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)
129
                               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^6z^2 + 110880x^4y^2z^4 - 31680x^4y^6z^4 - 46200x^2y^6z^2 + 110880x^2y^4z^4 - 63360x^2y^2z^6 + 7040x^2z^8 + 693y^{10} - 11550y^8z^2 + 36960y^6z^4 - 31680y^4z^6 + 7040y^2z^8 - 256z^{10}\right)
130
                               \sqrt{692835}z \left(x^2 + y^2 - 6z^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)
131
                              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)
132
                         x \left(256x^{10} - 7040x^8y^2 - 7040x^8y^2 - 7040x^8y^2 + 31680x^6y^4 + 63360x^6y^2z^2 + 31680x^6z^4 - 36960x^4y^6 - 110880x^4y^2z^4 - 36960x^4z^6 + 11550x^2y^8 + 46200x^2y^6z^2 + 69300x^2y^4z^4 + 46200x^2y^2z^6 + 11550x^2z^8 - 693y^{10} - 3465y^8z^2 - 6930y^6z^4 - 6930y^4z^6 - 3465y^2z^8 - 693z^{10}\right) + 365x^2y^2 + 31680x^6y^4 + 36360x^6y^2z^2 + 31680x^6y^2z^2 + 31680x^6y^2z^2
133
                               y\left(693x^{10} - 11550x^8y^2 + 3465x^8z^2 + 36960x^6y^4 - 46200x^6y^2z^2 + 6930x^6z^4 - 31680x^4y^6 + 110880x^4y^4z^2 - 69300x^4y^2z^4 + 6930x^4z^6 + 7040x^2y^8 - 63360x^2y^6z^2 + 110880x^2y^4z^4 - 46200x^2y^2z^6 + 3465x^2z^8 - 256y^{10} + 7040y^8z^2 - 31680y^6z^4 + 36960y^4z^6 - 11550y^2z^8 + 693z^{10}\right)
134
                            \sqrt{692835}x(6x^2-y^2-z^2)(y^4-4y^3z-6y^2z^2+4yz^3+z^4)(y^4+4y^3z-6y^2z^2-4yz^3+z^4)
135
                              \sqrt{692835}y(x^2-6y^2+z^2)(x^4-4x^3z-6x^2z^2+4xz^3+z^4)(x^4+4x^3z-6x^2z^2-4xz^3+z^4)
136
                        3\sqrt{1001}x\left(y^2-2yz-z^2\right)\left(y^2+2yz-z^2\right)\left(80x^6-168x^4y^2-168x^4z^2+70x^2y^4+140x^2y^2z^2+70x^2z^4-5y^6-15y^4z^2-15y^2z^4-5z^6\right)
137
                              3\sqrt{1001}y \left(x^2 - 2xz - z^2\right) \left(x^2 + 2xz - z^2\right) \left(5x^6 - 70x^4y^2 + 15x^4z^2 + 168x^2y^4 - 140x^2y^2z^2 + 15x^2z^4 - 80y^6 + 168y^4z^2 - 70y^2z^4 + 5z^6\right) \left(5x^6 - 70x^4y^2 + 15x^4z^2 + 168x^2y^4 - 140x^2y^2z^2 + 15x^2z^4 - 80y^6 + 168y^4z^2 - 70y^2z^4 + 5z^6\right) \left(5x^6 - 70x^4y^2 + 15x^4z^2 + 168x^2y^4 - 140x^2y^2z^2 + 15x^2z^4 - 80y^6 + 168y^4z^2 - 70y^2z^4 + 5z^6\right) \left(5x^6 - 70x^4y^2 + 15x^4z^2 + 168x^2y^4 - 140x^2y^2z^2 + 15x^2z^4 - 80y^6 + 168y^4z^2 - 70y^2z^4 + 5z^6\right) \left(5x^6 - 70x^4y^2 + 15x^4z^2 + 168x^2y^4 - 140x^2y^2z^2 + 15x^2z^4 - 80y^6 + 168y^4z^2 - 70y^2z^4 + 5z^6\right) \left(5x^6 - 70x^4y^2 + 15x^4z^2 + 168x^2y^4 - 140x^2y^2z^2 + 15x^2z^4 - 80y^6 + 168y^4z^2 - 70y^2z^4 + 5z^6\right) \left(5x^6 - 70x^4y^2 + 15x^4z^2 + 168x^2y^4 - 140x^2y^2z^2 + 15x^2z^4 - 80y^6 + 168y^4z^2 - 70y^2z^4 + 5z^6\right) \left(5x^6 - 70x^4y^2 + 15x^4z^2 + 168x^2y^4 - 140x^2y^2z^2 + 15x^2z^4 - 80y^6 + 168y^4z^2 - 70y^2z^4 + 5z^6\right) \left(5x^6 - 70x^4y^2 + 15x^4z^2 + 168x^2y^4 - 140x^2y^2z^2 + 15x^2z^4 - 80y^6 + 168y^4z^2 - 70y^2z^4 + 5z^6\right) \left(5x^6 - 70x^4y^2 + 15x^4z^2 + 168x^2y^4 - 140x^2y^2z^2 + 15x^2y^4 - 168y^4z^2 - 70y^2z^4 + 15x^4z^2 + 168y^4z^2 - 70y^2z^4 + 15x^4z^2 + 168y^4z^2 - 70y^2z^4 + 16y^2z^4 + 16y^2z^4 + 16y^2z^4 + 16y^2z^4 + 16y^2z^2 + 16y^2z^4 + 16y^2z^4
138
                           \sqrt{1939938}x(y-z)(y+z)(y^4-4y^3z-14y^2z^2-4yz^3+z^4)(y^4+4y^3z-14y^2z^2+4yz^3+z^4)
139
                           \sqrt{1939938}y(x-z)(x+z)(x^4-4x^3z-14x^2z^2-4xz^3+z^4)(x^4+4x^3z-14x^2z^2+4xz^3+z^4)
140
                         \sqrt{14586}x(y-z)(y+z)\left(y^2-4yz+z^2\right)\left(y^2+4yz+z^2\right)\left(224x^4-160x^2y^2-160x^2z^2+15y^4+30y^2z^2+15z^4\right)
141
                          \sqrt{14586}y(x-z)(x+z)(x^2-4xz+z^2)(x^2+4xz+z^2)(15x^4-160x^2y^2+30x^2z^2+224y^4-160y^2z^2+15z^4)
142
                          \sqrt{2145}x(y-z)(y+z)\left(128x^8-768x^6y^2-768x^6z^2+1008x^4y^4+2016x^4y^2z^2+1008x^4z^4-336x^2y^6-1008x^2y^4z^2-1008x^2y^2z^4-336x^2z^6+21y^8+84y^6z^2+126y^4z^4+84y^2z^6+21z^8\right)
143
                         \sqrt{2145}y(x-z)(x+z)\left(21x^8-336x^6y^2+84x^6z^2+1008x^4y^4-1008x^4y^2z^2+126x^4z^4-768x^2y^6+2016x^2y^4z^2-1008x^2y^2z^4+84x^2z^6+128y^8-768y^6z^2+1008y^4z^4-336y^2z^6+2128y^2z^2+126x^4z^4-768x^2y^6+2016x^2y^4z^2+1008x^2y^2z^4+84x^2z^6+128y^8-768y^6z^2+1008y^4z^4-336y^2z^6+2128y^6+2016x^2y^4z^2+1008x^2y^2z^4+84x^2z^6+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^4z^2+128y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2y^6+2016x^2
144
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