

No. 19 $C_{3v} - 1$ $31m$ (31m setting) [trigonal] (axial)

表 1 rank 0

| 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 | $-\sqrt{3}YZ$ |
| 7 | $\sqrt{3}XZ$ |
| 8 | $\sqrt{3}XY$ |
| 9 | $\frac{\sqrt{3}(X-Y)(X+Y)}{2}$ |

表 4 rank 3

| No. | expression |
|-----|--------------------------------------|
| 10 | $\frac{\sqrt{10}Y(3X^2-Y^2)}{4}$ |
| 11 | $-\frac{Z(3X^2+3Y^2-2Z^2)}{2}$ |
| 12 | $\frac{\sqrt{10}X(X^2-3Y^2)}{4}$ |
| 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 | $\frac{\sqrt{70}YZ(3X^2-Y^2)}{4}$ |
| 18 | $\frac{3X^4}{8} + \frac{3X^2Y^2}{4} - 3X^2Z^2 + \frac{3Y^4}{8} - 3Y^2Z^2 + Z^4$ |
| 19 | $\frac{\sqrt{70}XZ(X^2-3Y^2)}{4}$ |
| 20 | $\frac{\sqrt{10}YZ(3X^2+3Y^2-4Z^2)}{4}$ |
| 21 | $-\frac{\sqrt{10}XZ(3X^2+3Y^2-4Z^2)}{4}$ |
| 22 | $-\frac{\sqrt{35}XY(X-Y)(X+Y)}{2}$ |
| 23 | $\frac{\sqrt{35}(X^2-2XY-Y^2)(X^2+2XY-Y^2)}{8}$ |
| 24 | $-\frac{\sqrt{5}XY(X^2+Y^2-6Z^2)}{2}$ |
| 25 | $-\frac{\sqrt{5}(X-Y)(X+Y)(X^2+Y^2-6Z^2)}{4}$ |

表 6 rank 5

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

表 7 rank 6

| No. | expression |
|-----|--|
| 37 | $\frac{\sqrt{462}XY(X^2-3Y^2)(3X^2-Y^2)}{16}$ |
| 38 | $-\frac{\sqrt{210}YZ(3X^2-Y^2)(3X^2+3Y^2-8Z^2)}{16}$ |
| 39 | $-\frac{5X^6}{16} - \frac{15X^4Y^2}{16} + \frac{45X^4Z^2}{8} - \frac{15X^2Y^4}{16} + \frac{45X^2Y^2Z^2}{4} - \frac{15X^2Z^4}{2} - \frac{5Y^6}{16} + \frac{45Y^4Z^2}{8} - \frac{15Y^2Z^4}{2} + Z^6$ |
| 40 | $\frac{\sqrt{462}(X-Y)(X+Y)(X^2-4XY+Y^2)(X^2+4XY+Y^2)}{32}$ |
| 41 | $-\frac{\sqrt{210}XZ(X^2-3Y^2)(3X^2+3Y^2-8Z^2)}{16}$ |
| 42 | $\frac{3\sqrt{154}YZ(5X^4-10X^2Y^2+Y^4)}{16}$ |
| 43 | $\frac{3\sqrt{154}XZ(X^4-10X^2Y^2+5Y^4)}{16}$ |
| 44 | $-\frac{\sqrt{21}YZ(5X^4+10X^2Y^2-20X^2Z^2+5Y^4-20Y^2Z^2+8Z^4)}{8}$ |
| 45 | $\frac{\sqrt{21}XZ(5X^4+10X^2Y^2-20X^2Z^2+5Y^4-20Y^2Z^2+8Z^4)}{8}$ |
| 46 | $\frac{3\sqrt{7}XY(X-Y)(X+Y)(X^2+Y^2-10Z^2)}{4}$ |
| 47 | $-\frac{3\sqrt{7}(X^2+Y^2-10Z^2)(X^2-2XY-Y^2)(X^2+2XY-Y^2)}{16}$ |
| 48 | $\frac{\sqrt{210}XY(X^4+2X^2Y^2-16X^2Z^2+Y^4-16Y^2Z^2+16Z^4)}{16}$ |
| 49 | $\frac{\sqrt{210}(X-Y)(X+Y)(X^4+2X^2Y^2-16X^2Z^2+Y^4-16Y^2Z^2+16Z^4)}{32}$ |

表 8 rank 7

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

表 9 rank 8

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

表 10 rank 9

| No. | expression |
|-----|---|
| 82 | $-\frac{\sqrt{4290}XYZ(X^2-3Y^2)(3X^2-Y^2)(3X^2+3Y^2-14Z^2)}{32}$ |
| 83 | $\frac{\sqrt{24310}Y(3X^2-Y^2)(3X^6-27X^4Y^2+33X^2Y^4-Y^6)}{256}$ |
| 84 | $-\frac{\sqrt{2310}Y(3X^2-Y^2)(X^6+3X^4Y^2-36X^4Z^2+3X^2Y^4-72X^2Y^2Z^2+120X^2Z^4+Y^6-36Y^4Z^2+120Y^2Z^4-64Z^6)}{128}$ |
| 85 | $\frac{Z(315X^8+1260X^6Y^2-3360X^6Z^2+1890X^4Y^4-10080X^4Y^2Z^2+6048X^4Z^4+1260X^2Y^6-10080X^2Y^4Z^2+12096X^2Y^2Z^4-2304X^2Z^6+315Y^8-3360Y^6Z^2+6048Y^4Z^4-2304Y^2Z^6+128Z^8)}{128}$ |
| 86 | $-\frac{\sqrt{4290}Z(X-Y)(X+Y)(X^2-4XY+Y^2)(X^2+4XY+Y^2)(3X^2+3Y^2-14Z^2)}{64}$ |
| 87 | $\frac{\sqrt{24310}X(X^2-3Y^2)(X^6-33X^4Y^2+27X^2Y^4-3Y^6)}{256}$ |
| 88 | $-\frac{\sqrt{2310}X(X^2-3Y^2)(X^6+3X^4Y^2-36X^4Z^2+3X^2Y^4-72X^2Y^2Z^2+120X^2Z^4+Y^6-36Y^4Z^2+120Y^2Z^4-64Z^6)}{128}$ |
| 89 | $\frac{3\sqrt{1430}Y(X^2+Y^2-16Z^2)(7X^6-35X^4Y^2+21X^2Y^4-Y^6)}{256}$ |
| 90 | $-\frac{3\sqrt{1430}X(X^2+Y^2-16Z^2)(X^6-21X^4Y^2+35X^2Y^4-7Y^6)}{256}$ |
| 91 | $\frac{3\sqrt{286}Y(5X^4-10X^2Y^2+Y^4)(X^4+2X^2Y^2-28X^2Z^2+Y^4-28Y^2Z^2+56Z^4)}{128}$ |
| 92 | $\frac{3\sqrt{286}X(X^4-10X^2Y^2+5Y^4)(X^4+2X^2Y^2-28X^2Z^2+Y^4-28Y^2Z^2+56Z^4)}{128}$ |
| 93 | $-\frac{3\sqrt{5}Y(7X^8+28X^6Y^2-280X^6Z^2+42X^4Y^4-840X^4Y^2Z^2+1120X^4Z^4+28X^2Y^6-840X^2Y^4Z^2+2240X^2Y^2Z^4-896X^2Z^6+7Y^8-280Y^6Z^2+1120Y^4Z^4-896Y^2Z^6+128Z^8)}{128}$ |
| 94 | $\frac{3\sqrt{5}X(7X^8+28X^6Y^2-280X^6Z^2+42X^4Y^4-840X^4Y^2Z^2+1120X^4Z^4+28X^2Y^6-840X^2Y^4Z^2+2240X^2Y^2Z^4-896X^2Z^6+7Y^8-280Y^6Z^2+1120Y^4Z^4-896Y^2Z^6+128Z^8)}{128}$ |
| 95 | $\frac{3\sqrt{12155}XYZ(X-Y)(X+Y)(X^2-2XY-Y^2)(X^2+2XY-Y^2)}{16}$ |
| 96 | $\frac{3\sqrt{12155}Z(X^4-4X^3Y-6X^2Y^2+4XY^3+Y^4)(X^4+4X^3Y-6X^2Y^2-4XY^3+Y^4)}{128}$ |
| 97 | $-\frac{3\sqrt{5005}XYZ(X-Y)(X+Y)(X^4+2X^2Y^2-8X^2Z^2+Y^4-8Y^2Z^2+8Z^4)}{16}$ |
| 98 | $\frac{3\sqrt{5005}Z(X^2-2XY-Y^2)(X^2+2XY-Y^2)(X^4+2X^2Y^2-8X^2Z^2+Y^4-8Y^2Z^2+8Z^4)}{64}$ |
| 99 | $-\frac{3\sqrt{110}XYZ(7X^6+21X^4Y^2-70X^4Z^2+21X^2Y^4-140X^2Y^2Z^2+112X^2Z^4+7Y^6-70Y^4Z^2+112Y^2Z^4-32Z^6)}{32}$ |
| 100 | $-\frac{3\sqrt{110}Z(X-Y)(X+Y)(7X^6+21X^4Y^2-70X^4Z^2+21X^2Y^4-140X^2Y^2Z^2+112X^2Z^4+7Y^6-70Y^4Z^2+112Y^2Z^4-32Z^6)}{64}$ |

表 11 rank 10

| No. | expression |
|-----|---|
| 101 | $\frac{\sqrt{4290XY(X^2-3Y^2)(3X^2-Y^2)(3X^4+6X^2Y^2-96X^2Z^2+3Y^4-96Y^2Z^2+224Z^4)}}{256}$ |
| 102 | $\frac{\sqrt{461890YZ(3X^2-Y^2)(3X^6-27X^4Y^2+33X^2Y^4-Y^6)}}{256}$ |
| 103 | $-\frac{\sqrt{4290YZ(3X^2-Y^2)(7X^6+21X^4Y^2-84X^4Z^2+21X^2Y^4-168X^2Y^2Z^2+168X^2Z^4+7Y^6-84Y^4Z^2+168Y^2Z^4-64Z^6)}}{128}$ |
| 104 | $-\frac{63X^{10}}{256} - \frac{315X^8Y^2}{256} + \frac{1575X^8Z^2}{128} - \frac{315X^6Y^4}{128} + \frac{1575X^6Y^2Z^2}{32} - \frac{525X^6Z^4}{8} - \frac{315X^4Y^6}{128} + \frac{4725X^4Y^4Z^2}{64} - \frac{1575X^4Y^2Z^4}{8} + \frac{315X^4Z^6}{4} - \frac{315X^2Y^8}{256} + \frac{1575X^2Y^6Z^2}{32} - \frac{1575X^2Y^4Z^4}{8} + \frac{315X^2Y^2Z^6}{2} - \frac{45X^2Z^8}{2} - \frac{63Y^{10}}{256} + \frac{1575Y^8Z^2}{128} - \frac{525Y^6Z^4}{8} + \frac{315Y^4Z^6}{4} - \frac{45Y^2Z^8}{2} + Z^{10}$ |
| 105 | $\frac{\sqrt{4290(X-Y)(X+Y)(X^2-4XY+Y^2)(X^2+4XY+Y^2)(3X^4+6X^2Y^2-96X^2Z^2+3Y^4-96Y^2Z^2+224Z^4)}}{512}$ |
| 106 | $\frac{\sqrt{461890XZ(X^2-3Y^2)(X^6-33X^4Y^2+27X^2Y^4-3Y^6)}}{256}$ |
| 107 | $-\frac{\sqrt{4290XZ(X^2-3Y^2)(7X^6+21X^4Y^2-84X^4Z^2+21X^2Y^4-168X^2Y^2Z^2+168X^2Z^4+7Y^6-84Y^4Z^2+168Y^2Z^4-64Z^6)}}{128}$ |
| 108 | $\frac{\sqrt{72930YZ(3X^2+3Y^2-16Z^2)(7X^6-35X^4Y^2+21X^2Y^4-Y^6)}}{256}$ |
| 109 | $-\frac{\sqrt{72930XZ(3X^2+3Y^2-16Z^2)(X^6-21X^4Y^2+35X^2Y^4-7Y^6)}}{256}$ |
| 110 | $\frac{\sqrt{858YZ(5X^4-10X^2Y^2+Y^4)(15X^4+30X^2Y^2-140X^2Z^2+15Y^4-140Y^2Z^2+168Z^4)}}{128}$ |
| 111 | $\frac{\sqrt{858XZ(X^4-10X^2Y^2+5Y^4)(15X^4+30X^2Y^2-140X^2Z^2+15Y^4-140Y^2Z^2+168Z^4)}}{128}$ |
| 112 | $-\frac{\sqrt{55YZ(63X^8+252X^6Y^2-840X^6Z^2+378X^4Y^4-2520X^4Y^2Z^2+2016X^4Z^4+252X^2Y^6-2520X^2Y^4Z^2+4032X^2Y^2Z^4-1152X^2Z^6+63Y^8-840Y^6Z^2+2016Y^4Z^4-1152Y^2Z^6+128Z^8)}}{128}$ |
| 113 | $\frac{\sqrt{55XZ(63X^8+252X^6Y^2-840X^6Z^2+378X^4Y^4-2520X^4Y^2Z^2+2016X^4Z^4+252X^2Y^6-2520X^2Y^4Z^2+4032X^2Y^2Z^4-1152X^2Z^6+63Y^8-840Y^6Z^2+2016Y^4Z^4-1152Y^2Z^6+128Z^8)}}{128}$ |
| 114 | $-\frac{\sqrt{92378XY(X^4-10X^2Y^2+5Y^4)(5X^4-10X^2Y^2+Y^4)}}{256}$ |
| 115 | $\frac{\sqrt{92378(X-Y)(X+Y)(X^4-4X^3Y-14X^2Y^2-4XY^3+Y^4)(X^4+4X^3Y-14X^2Y^2+4XY^3+Y^4)}}{512}$ |
| 116 | $-\frac{\sqrt{12155XY(X-Y)(X+Y)(X^2+Y^2-18Z^2)(X^2-2XY-Y^2)(X^2+2XY-Y^2)}}{32}$ |
| 117 | $-\frac{\sqrt{12155(X^2+Y^2-18Z^2)(X^4-4X^3Y-6X^2Y^2+4XY^3+Y^4)(X^4+4X^3Y-6X^2Y^2-4XY^3+Y^4)}}{256}$ |
| 118 | $\frac{\sqrt{2145XY(X-Y)(X+Y)(X^6+3X^4Y^2-42X^4Z^2+3X^2Y^4-84X^2Y^2Z^2+168X^2Z^4+Y^6-42Y^4Z^2+168Y^2Z^4-112Z^6)}}{32}$ |
| 119 | $-\frac{\sqrt{2145(X^2-2XY-Y^2)(X^2+2XY-Y^2)(X^6+3X^4Y^2-42X^4Z^2+3X^2Y^4-84X^2Y^2Z^2+168X^2Z^4+Y^6-42Y^4Z^2+168Y^2Z^4-112Z^6)}}{128}$ |
| 120 | $\frac{\sqrt{165XY(7X^8+28X^6Y^2-336X^6Z^2+42X^4Y^4-1008X^4Y^2Z^2+1680X^4Z^4+28X^2Y^6-1008X^2Y^4Z^2+3360X^2Y^2Z^4-1792X^2Z^6+7Y^8-336Y^6Z^2+1680Y^4Z^4-1792Y^2Z^6+384Z^8)}}{128}$ |
| 121 | $\frac{\sqrt{165(X-Y)(X+Y)(7X^8+28X^6Y^2-336X^6Z^2+42X^4Y^4-1008X^4Y^2Z^2+1680X^4Z^4+28X^2Y^6-1008X^2Y^4Z^2+3360X^2Y^2Z^4-1792X^2Z^6+7Y^8-336Y^6Z^2+1680Y^4Z^4-1792Y^2Z^6+384Z^8)}}{256}$ |

表 12 rank 11

| No. | expression |
|-----|---|
| 122 | $\frac{\sqrt{14586}XYZ(X^2-3Y^2)(3X^2-Y^2)(15X^4+30X^2Y^2-160X^2Z^2+15Y^4-160Y^2Z^2+224Z^4)}{256}$ |
| 123 | $-\frac{\sqrt{46189}Y(3X^2-Y^2)(X^2+Y^2-20Z^2)(3X^6-27X^4Y^2+33X^2Y^4-Y^6)}{512}$ |
| 124 | $\frac{\sqrt{30030}Y(3X^2-Y^2)(X^8+4X^6Y^2-56X^6Z^2+6X^4Y^4-168X^4Y^2Z^2+336X^4Z^4+4X^2Y^6-168X^2Y^4Z^2+672X^2Y^2Z^4-448X^2Z^6+Y^8-56Y^6Z^2+336Y^4Z^4-448Y^2Z^6+128Z^8)}{512}$ |
| 125 | $-\frac{Z(693X^{10}+3465X^8Y^2-11550X^8Z^2+6930X^6Y^4-46200X^6Y^2Z^2+36960X^6Z^4+6930X^4Y^6-69300X^4Y^4Z^2+110880X^4Y^2Z^4-31680X^4Z^6+3465X^2Y^8-46200X^2Y^6Z^2+110880X^2Y^4Z^4-63360X^2Y^2Z^6+7040X^2Z^8+693Y^{10}-11550Y^8Z^2+36960Y^6Z^4-31680Y^4Z^6+7040Y^2Z^8-256Z^{10})}{256}$ |
| 126 | $\frac{\sqrt{14586}Z(X-Y)(X+Y)(X^2-4XY+Y^2)(X^2+4XY+Y^2)(15X^4+30X^2Y^2-160X^2Z^2+15Y^4-160Y^2Z^2+224Z^4)}{512}$ |
| 127 | $-\frac{\sqrt{46189}X(X^2-3Y^2)(X^2+Y^2-20Z^2)(X^6-33X^4Y^2+27X^2Y^4-3Y^6)}{512}$ |
| 128 | $\frac{\sqrt{30030}X(X^2-3Y^2)(X^8+4X^6Y^2-56X^6Z^2+6X^4Y^4-168X^4Y^2Z^2+336X^4Z^4+4X^2Y^6-168X^2Y^4Z^2+672X^2Y^2Z^4-448X^2Z^6+Y^8-56Y^6Z^2+336Y^4Z^4-448Y^2Z^6+128Z^8)}{512}$ |
| 129 | $\frac{\sqrt{88179}Y(11X^{10}-165X^8Y^2+462X^6Y^4-330X^4Y^6+55X^2Y^8-Y^{10})}{512}$ |
| 130 | $\frac{\sqrt{88179}X(X^{10}-55X^8Y^2+330X^6Y^4-462X^4Y^6+165X^2Y^8-11Y^{10})}{512}$ |
| 131 | $-\frac{\sqrt{36465}Y(7X^6-35X^4Y^2+21X^2Y^4-Y^6)(X^4+2X^2Y^2-36X^2Z^2+Y^4-36Y^2Z^2+96Z^4)}{512}$ |
| 132 | $\frac{\sqrt{36465}X(X^6-21X^4Y^2+35X^2Y^4-7Y^6)(X^4+2X^2Y^2-36X^2Z^2+Y^4-36Y^2Z^2+96Z^4)}{512}$ |
| 133 | $-\frac{3\sqrt{143}Y(5X^4-10X^2Y^2+Y^4)(5X^6+15X^4Y^2-240X^4Z^2+15X^2Y^4-480X^2Y^2Z^2+1120X^2Z^4+5Y^6-240Y^4Z^2+1120Y^2Z^4-896Z^6)}{512}$ |
| 134 | $-\frac{3\sqrt{143}X(X^4-10X^2Y^2+5Y^4)(5X^6+15X^4Y^2-240X^4Z^2+15X^2Y^4-480X^2Y^2Z^2+1120X^2Z^4+5Y^6-240Y^4Z^2+1120Y^2Z^4-896Z^6)}{512}$ |
| 135 | $\frac{\sqrt{66}Y(21X^{10}+105X^8Y^2-1260X^8Z^2+210X^6Y^4-5040X^6Y^2Z^2+8400X^6Z^4+210X^4Y^6-7560X^4Y^4Z^2+25200X^4Y^2Z^4-13440X^4Z^6+105X^2Y^8-5040X^2Y^6Z^2+25200X^2Y^4Z^4-26880X^2Y^2Z^6+5760X^2Z^8+21Y^{10}-1260Y^8Z^2+8400Y^6Z^4-13440Y^4Z^6+5760Y^2Z^8-512Z^{10})}{512}$ |
| 136 | $-\frac{\sqrt{66}X(21X^{10}+105X^8Y^2-1260X^8Z^2+210X^6Y^4-5040X^6Y^2Z^2+8400X^6Z^4+210X^4Y^6-7560X^4Y^4Z^2+25200X^4Y^2Z^4-13440X^4Z^6+105X^2Y^8-5040X^2Y^6Z^2+25200X^2Y^4Z^4-26880X^2Y^2Z^6+5760X^2Z^8+21Y^{10}-1260Y^8Z^2+8400Y^6Z^4-13440Y^4Z^6+5760Y^2Z^8-512Z^{10})}{512}$ |
| 137 | $-\frac{\sqrt{1939938}XYZ(X^4-10X^2Y^2+5Y^4)(5X^4-10X^2Y^2+Y^4)}{256}$ |
| 138 | $\frac{\sqrt{1939938}Z(X-Y)(X+Y)(X^4-4X^3Y-14X^2Y^2-4XY^3+Y^4)(X^4+4X^3Y-14X^2Y^2+4XY^3+Y^4)}{512}$ |
| 139 | $-\frac{\sqrt{692835}XYZ(X-Y)(X+Y)(X^2+Y^2-6Z^2)(X^2-2XY-Y^2)(X^2+2XY-Y^2)}{32}$ |
| 140 | $-\frac{\sqrt{692835}Z(X^2+Y^2-6Z^2)(X^4-4X^3Y-6X^2Y^2+4XY^3+Y^4)(X^4+4X^3Y-6X^2Y^2-4XY^3+Y^4)}{256}$ |
| 141 | $\frac{3\sqrt{1001}XYZ(X-Y)(X+Y)(5X^6+15X^4Y^2-70X^4Z^2+15X^2Y^4-140X^2Y^2Z^2+168X^2Z^4+5Y^6-70Y^4Z^2+168Y^2Z^4-80Z^6)}{32}$ |
| 142 | $-\frac{3\sqrt{1001}Z(X^2-2XY-Y^2)(X^2+2XY-Y^2)(5X^6+15X^4Y^2-70X^4Z^2+15X^2Y^4-140X^2Y^2Z^2+168X^2Z^4+5Y^6-70Y^4Z^2+168Y^2Z^4-80Z^6)}{128}$ |
| 143 | $\frac{\sqrt{2145}XYZ(21X^8+84X^6Y^2-336X^6Z^2+126X^4Y^4-1008X^4Y^2Z^2+1008X^4Z^4+84X^2Y^6-1008X^2Y^4Z^2+2016X^2Y^2Z^4-768X^2Z^6+21Y^8-336Y^6Z^2+1008Y^4Z^4-768Y^2Z^6+128Z^8)}{128}$ |
| 144 | $\frac{\sqrt{2145}Z(X-Y)(X+Y)(21X^8+84X^6Y^2-336X^6Z^2+126X^4Y^4-1008X^4Y^2Z^2+1008X^4Z^4+84X^2Y^6-1008X^2Y^4Z^2+2016X^2Y^2Z^4-768X^2Z^6+21Y^8-336Y^6Z^2+1008Y^4Z^4-768Y^2Z^6+128Z^8)}{256}$ |