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> read "AddOreSatoImple.mm":
Warning, (in IntegerLinearType V1) `i` is implicitly declared local
[MultivariateILD test:539]
Warning, (in IntegerLinearType V2) `i` is implicitly declared local
[MultivariateILD test:989]
Warning, (in IntegerLinearType) `i` is implicitly declared local
[MultivariateILD test:2408]
> with(AddOreSato);
[AbramovReduction, CompletePartialFraction, IntegerLinearTypePoly,
PartialFraction, SortFraction, TransUniWZForms, VerifyWZForm,
VerifyWZFormDecomp, WZFormDecomp]

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(1)

```

> f := normal( add( 1 / (4 x + 6 y + 5 z + l), l = 0..3 ) );
f := (2 (128 x^3 + 576 x^2 y + 480 x^2 z + 864 x y^2 + 1440 x y z + 600 x z^2 + 432 y^3
+ 1080 y^2 z + 900 y z^2 + 250 z^3 + 144 x^2 + 432 x y + 360 x z + 324 y^2 + 540 y z
+ 225 z^2 + 44 x + 66 y + 55 z + 3)) / ((4 x + 6 y + 5 z) (4 x + 6 y + 5 z
+ 1) (4 x + 6 y + 5 z + 2) (4 x + 6 y + 5 z + 3))

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(2)

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> g := normal( add( 1 / (4 x + 6 y + 5 z + l), l = 0..5 ) - add( 1 / (-3 y + 2 z + l), l = -3..
-1 ) );
g := (110592 x^6 y^2 - 147456 x^6 y z + 49152 x^6 z^2 + 1161216 x^5 y^3 - 829440 x^5 y^2 z
- 442368 x^5 y z^2 + 319488 x^5 z^3 + 4976640 x^4 y^4 - 207360 x^4 y^3 z
- 4458240 x^4 y^2 z^2 + 322560 x^4 y z^3 + 844800 x^4 z^4 + 11197440 x^3 y^5
+ 7464960 x^3 y^4 z - 10886400 x^3 y^3 z^2 - 6117120 x^3 y^2 z^3 + 2764800 x^3 y z^4
+ 1152000 x^3 z^5 + 13996800 x^2 y^6 + 19595520 x^2 y^5 z - 7464960 x^2 y^4 z^2
- 17858880 x^2 y^3 z^3 - 1393200 x^2 y^2 z^4 + 4104000 x^2 y z^5 + 840000 x^2 z^6
+ 9237888 x y^7 + 19875456 x y^6 z + 4339008 x y^5 z^2 - 16018560 x y^4 z^3
- 9412200 x y^3 z^4 + 2511000 x y^2 z^5 + 2520000 x y z^6 + 300000 x z^7 + 2519424 y^8
+ 7348320 y^7 z + 5213808 y^6 z^2 - 3697488 y^5 z^3 - 5929200 y^4 z^4 - 1073250 y^3 z^5
+ 1299375 y^2 z^6 + 562500 y z^7 + 37500 z^8 + 147456 x^6 y - 98304 x^6 z
+ 2073600 x^5 y^2 - 774144 x^5 y z - 405504 x^5 z^2 + 11093760 x^4 y^3
+ 1140480 x^4 y^2 z - 5114880 x^4 y z^2 - 384000 x^4 z^3 + 29859840 x^3 y^4
+ 20217600 x^3 y^3 z - 15085440 x^3 y^2 z^2 - 8640000 x^3 y z^3 + 576000 x^3 z^4
+ 43390080 x^2 y^5 + 56920320 x^2 y^4 z - 7659360 x^2 y^3 z^2 - 28836000 x^2 y^2 z^3
- 4968000 x^2 y z^4 + 1440000 x^2 z^5 + 32612544 x y^6 + 64805184 x y^5 z
+ 20062080 x y^4 z^2 - 29322000 x y^3 z^3 - 17779500 x y^2 z^4 + 270000 x y z^5
+ 1050000 x z^6 + 9972720 y^7 + 26838864 y^6 z + 19228104 y^5 z^2 - 6318000 y^4 z^3
- 12281625 y^3 z^4 - 3088125 y^2 z^5 + 787500 y z^6 + 262500 z^7 + 45056 x^6

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(3)

$$\begin{aligned}
& + 1161216 x^5 y - 165888 x^5 z + 8812800 x^4 y^2 + 1313280 x^4 y z - 1370880 x^4 z^2 \\
& + 30378240 x^3 y^3 + 18558720 x^3 y^2 z - 6462720 x^3 y z^2 - 2676480 x^3 z^3 \\
& + 53498880 x^2 y^4 + 62389440 x^2 y^3 z + 246240 x^2 y^2 z^2 - 14650560 x^2 y z^3 \\
& - 2074800 x^2 z^4 + 47075904 x y^5 + 83825280 x y^4 z + 28609200 x y^3 z^2 \\
& - 18703440 x y^2 z^3 - 10247400 x y z^4 - 501000 x z^5 + 16457904 y^6 \\
& + 40089168 y^5 z + 27488160 y^4 z^2 - 2977020 y^3 z^3 - 9032175 y^2 z^4 - 2202750 y z^5 \\
& + 56875 z^6 + 205824 x^5 + 2960640 x^4 y + 341760 x^4 z + 14696640 x^3 y^2 \\
& + 7050240 x^3 y z - 812160 x^3 z^2 + 33404400 x^2 y^3 + 32393520 x^2 y^2 z \\
& + 2198880 x^2 y z^2 - 2316000 x^2 z^3 + 35769600 x y^4 + 54934200 x y^3 z \\
& + 17951220 x y^2 z^2 - 4680000 x y z^3 - 1825500 x z^4 + 14670396 y^5 \\
& + 31580280 y^4 z + 19693935 y^3 z^2 + 334125 y^2 z^3 - 2743875 y z^4 - 455625 z^5 \\
& + 354560 x^4 + 3363840 x^3 y + 948480 x^3 z + 11052288 x^2 y^2 + 7969536 x^2 y z \\
& + 544608 x^2 z^2 + 15296688 x y^3 + 19141920 x y^2 z + 5170176 x y z^2 - 332016 x z^3 \\
& + 7635384 y^4 + 14056524 y^3 z + 7478136 y^2 z^2 + 554016 y z^3 - 279095 z^4 \\
& + 288960 x^3 + 1814544 x^2 y + 740784 x^2 z + 3624480 x y^2 + 3332808 x y z \\
& + 555828 x z^2 + 2332476 y^3 + 3490128 y^2 z + 1422657 y z^2 + 100725 z^3 \\
& + 113024 x^2 + 428688 x y + 222816 x z + 395208 y^2 + 437604 y z + 104800 z^2 \\
& + 18432 x + 31608 y + 20400 z + 720) / ((4 x + 6 y + 5 z) (4 x + 6 y + 5 z \\
& + 1) (4 x + 6 y + 5 z + 2) (4 x + 6 y + 5 z + 3) (4 x + 6 y + 5 z + 4) (4 x \\
& + 6 y + 5 z + 5) (3 y - 2 z + 3) (3 y - 2 z + 2) (3 y - 2 z + 1))
\end{aligned}$$

$$\begin{aligned}
> h := normal \Big(add \Big(\frac{1}{4 x + 6 y + 5 z + l}, l = 0 \dots 4 \Big) + add \Big(\frac{1}{-3 y + 2 z + l}, l = 0 \\
\dots 1 \Big) \Big);
\end{aligned}$$

$$\begin{aligned}
h := & - (6144 x^5 y - 4096 x^5 z + 34560 x^4 y^2 + 23040 x^4 y z - 30720 x^4 z^2 \\
& + 69120 x^3 y^3 + 172800 x^3 y^2 z - 11520 x^3 y z^2 - 89600 x^3 z^3 + 51840 x^2 y^4 \\
& + 328320 x^2 y^3 z + 254880 x^2 y^2 z^2 - 139200 x^2 y z^3 - 128000 x^2 z^4 \\
& + 233280 x y^4 z + 427680 x y^3 z^2 + 97200 x y^2 z^3 - 189000 x y z^4 - 90000 x z^5 \\
& - 11664 y^6 + 46656 y^5 z + 184680 y^4 z^2 + 156600 y^3 z^3 - 23625 y^2 z^4 - 78750 y z^5 \\
& - 25000 z^6 - 1024 x^5 + 11520 x^4 y - 19200 x^4 z + 69120 x^3 y^2 + 11520 x^3 y z \\
& - 90240 x^3 z^2 + 120960 x^2 y^3 + 224640 x^2 y^2 z - 110880 x^2 y z^2 - 178400 x^2 z^3 \\
& + 77760 x y^4 + 336960 x y^3 z + 168480 x y^2 z^2 - 241200 x y z^3 - 160500 x z^4 \\
& + 11664 y^5 + 136080 y^4 z + 197640 y^3 z^2 - 5400 y^2 z^3 - 133875 y z^4 - 54375 z^5 \\
& - 2560 x^4 + 5760 x^3 y - 26880 x^3 z + 45360 x^2 y^2 - 21600 x^2 y z - 83520 x^2 z^2 \\
& + 62640 x y^3 + 78840 x y^2 z - 101160 x y z^2 - 102800 x z^3 + 24300 y^4 \\
& + 76140 y^3 z + 12555 y^2 z^2 - 81450 y z^3 - 44250 z^4 - 2240 x^3 - 240 x^2 y \\
& - 14960 x^2 z + 10800 x y^2 - 15480 x y z - 28500 x z^2 + 9180 y^3 + 5940 y^2 z
\end{aligned} \tag{4}$$

$$\begin{aligned}
& -21375 y z^2 - 16625 z^3 - 800 x^2 - 624 x y - 3184 x z + 648 y^2 - 2268 y z \\
& - 2826 z^2 - 96 x - 72 y - 168 z) / ((4 x + 6 y + 5 z) (4 x + 6 y + 5 z + 1) (4 x \\
& + 6 y + 5 z + 2) (4 x + 6 y + 5 z + 3) (4 x + 6 y + 5 z + 4) (3 y - 2 z) (3 y \\
& - 2 z - 1))
\end{aligned}$$

> VerifyWZForm([f, g, h], [x, y, z]);

true

(5)

> S := WZFormDecomp([f, g, h], [x, y, z], Z);

$$S := 0, \left[\left[\frac{1}{4 x + 6 y + 5 z} + \frac{1}{4 x + 6 y + 5 z + 1} + \frac{1}{4 x + 6 y + 5 z + 2} \right. \right. \quad (6)$$

$$+ \frac{1}{4 x + 6 y + 5 z + 3}, \frac{1}{4 x + 6 y + 5 z} + \frac{1}{4 x + 6 y + 5 z + 1}$$

$$+ \frac{1}{4 x + 6 y + 5 z + 2} + \frac{1}{4 x + 6 y + 5 z + 3} + \frac{1}{4 x + 6 y + 5 z + 4}$$

$$+ \frac{1}{4 x + 6 y + 5 z + 5}, \frac{1}{4 x + 6 y + 5 z} + \frac{1}{4 x + 6 y + 5 z + 1}$$

$$+ \frac{1}{4 x + 6 y + 5 z + 2} + \frac{1}{4 x + 6 y + 5 z + 3} + \frac{1}{4 x + 6 y + 5 z + 4} \Big], \left[0, \right.$$

$$- \frac{1}{-3 y + 2 z - 3} - \frac{1}{-3 y + 2 z - 2} - \frac{1}{-3 y + 2 z - 1}, \frac{1}{-3 y + 2 z}$$

$$+ \frac{1}{-3 y + 2 z + 1} \Big], \left[4 x + 6 y + 5 z = \frac{1}{Z}, -3 y + 2 z = \frac{1}{Z} \right]$$

> TransUniWZForms(S[2], [x, y, z], Z);

$$\text{table} \left(\left[[0, -3, 2] = \frac{1}{Z}, [4, 6, 5] = \frac{1}{Z} \right] \right)$$

(7)

$$\begin{aligned}
> f := \text{normal} \left(\text{subs} \left(x = x + 1, \frac{1}{(4 x + 6 y + 5 z + 1)^2} \right) - \frac{1}{(4 x + 6 y + 5 z + 1)^2} \right. \\
\left. + \text{add} \left(\frac{1}{4 x + 6 y + 5 z + l}, l = 0 \dots 3 \right) \right);
\end{aligned}$$

$$f := (2 (8192 x^6 + 73728 x^5 y + 61440 x^5 z + 276480 x^4 y^2 + 460800 x^4 y z \quad (8)$$

$$+ 192000 x^4 z^2 + 552960 x^3 y^3 + 1382400 x^3 y^2 z + 1152000 x^3 y z^2 + 320000 x^3 z^3$$

$$+ 622080 x^2 y^4 + 2073600 x^2 y^3 z + 2592000 x^2 y^2 z^2 + 1440000 x^2 y z^3$$

$$+ 300000 x^2 z^4 + 373248 x y^5 + 1555200 x y^4 z + 2592000 x y^3 z^2$$

$$+ 2160000 x y^2 z^3 + 900000 x y z^4 + 150000 x z^5 + 93312 y^6 + 466560 y^5 z$$

$$+ 972000 y^4 z^2 + 1080000 y^3 z^3 + 675000 y^2 z^4 + 225000 y z^5 + 31250 z^6$$

$$+ 31744 x^5 + 238080 x^4 y + 198400 x^4 z + 714240 x^3 y^2 + 1190400 x^3 y z$$

$$+ 496000 x^3 z^2 + 1071360 x^2 y^3 + 2678400 x^2 y^2 z + 2232000 x^2 y z^2$$

$$+ 620000 x^2 z^3 + 803520 x y^4 + 2678400 x y^3 z + 3348000 x y^2 z^2$$

$$+ 1860000 x y z^3 + 387500 x z^4 + 241056 y^5 + 1004400 y^4 z + 1674000 y^3 z^2$$

$$+ 1395000 y^2 z^3 + 581250 y z^4 + 96875 z^5 + 45056 x^4 + 270336 x^3 y + 225280 x^3 z$$

$$\begin{aligned}
& + 608256 \ x^2 \ y^2 + 1013760 \ x^2 \ y \ z + 422400 \ x^2 \ z^2 + 608256 \ x \ y^3 + 1520640 \ x \ y^2 \ z \\
& + 1267200 \ x \ y \ z^2 + 352000 \ x \ z^3 + 228096 \ y^4 + 760320 \ y^3 \ z + 950400 \ y^2 \ z^2 \\
& + 528000 \ y \ z^3 + 110000 \ z^4 + 29248 \ x^3 + 131616 \ x^2 \ y + 109680 \ x^2 \ z + 197424 \ x \ y^2 \\
& + 329040 \ x \ y \ z + 137100 \ x \ z^2 + 98712 \ y^3 + 246780 \ y^2 \ z + 205650 \ y \ z^2 + 57125 \ z^3 \\
& + 8944 \ x^2 + 26832 \ x \ y + 22360 \ x \ z + 20124 \ y^2 + 33540 \ y \ z + 13975 \ z^2 + 1232 \ x \\
& + 1848 \ y + 1540 \ z + 75) \Big) / \Big((4 \ x + 6 \ y + 5 \ z + 5)^2 (4 \ x + 6 \ y + 5 \ z + 1)^2 (4 \ x \\
& + 6 \ y + 5 \ z) (4 \ x + 6 \ y + 5 \ z + 2) (4 \ x + 6 \ y + 5 \ z + 3) \Big)
\end{aligned}$$

$$\begin{aligned}
& > g := normal \Big(subs \Big(y = y + 1, \frac{1}{(4 \ x + 6 \ y + 5 \ z + 1)^2} \Big) - \frac{1}{(4 \ x + 6 \ y + 5 \ z + 1)^2} \\
& \quad + add \Big(\frac{1}{4 \ x + 6 \ y + 5 \ z + l}, l = 0..5 \Big) + add \Big(\frac{1}{(3 \ y + 2 \ z + 2 + l)^2}, l = 0..2 \Big) \Big); \\
g := & (286654464 \ x^8 \ y^6 + 1146617856 \ x^8 \ y^5 \ z + 1911029760 \ x^8 \ y^4 \ z^2 \\
& + 1698693120 \ x^8 \ y^3 \ z^3 + 849346560 \ x^8 \ y^2 \ z^4 + 226492416 \ x^8 \ y \ z^5 + 25165824 \ x^8 \ z^6 \\
& + 3439853568 \ x^7 \ y^7 + 16625958912 \ x^7 \ y^6 \ z + 34398535680 \ x^7 \ y^5 \ z^2 \\
& + 39494615040 \ x^7 \ y^4 \ z^3 + 27179089920 \ x^7 \ y^3 \ z^4 + 11211374592 \ x^7 \ y^2 \ z^5 \\
& + 2566914048 \ x^7 \ y \ z^6 + 251658240 \ x^7 \ z^7 + 18059231232 \ x^6 \ y^8 \\
& + 102335643648 \ x^6 \ y^7 \ z + 253330882560 \ x^6 \ y^6 \ z^2 + 357840322560 \ x^6 \ y^5 \ z^3 \\
& + 315479162880 \ x^6 \ y^4 \ z^4 + 177768235008 \ x^6 \ y^3 \ z^5 + 62526062592 \ x^6 \ y^2 \ z^6 \\
& + 12551454720 \ x^6 \ y \ z^7 + 1101004800 \ x^6 \ z^8 + 54177693696 \ x^5 \ y^9 \\
& + 352155009024 \ x^5 \ y^8 \ z + 1015831756800 \ x^5 \ y^7 \ z^2 + 1706848174080 \ x^5 \ y^6 \ z^3 \\
& + 1841038295040 \ x^5 \ y^5 \ z^4 + 1322002612224 \ x^5 \ y^4 \ z^5 + 631998775296 \ x^5 \ y^3 \ z^6 \\
& + 193969520640 \ x^5 \ y^2 \ z^7 + 34681651200 \ x^5 \ y \ z^8 + 2752512000 \ x^5 \ z^9 \\
& + 101583175680 \ x^4 \ y^{10} + 744943288320 \ x^4 \ y^9 \ z + 2454926745600 \ x^4 \ y^8 \ z^2 \\
& + 4787577446400 \ x^4 \ y^7 \ z^3 + 6118897075200 \ x^4 \ y^6 \ z^4 + 5355377233920 \ x^4 \ y^5 \ z^5 \\
& + 3250626785280 \ x^4 \ y^4 \ z^6 + 1351190937600 \ x^4 \ y^3 \ z^7 + 368105472000 \ x^4 \ y^2 \ z^8 \\
& + 59351040000 \ x^4 \ y \ z^9 + 4300800000 \ x^4 \ z^{10} + 121899810816 \ x^3 \ y^{11} \\
& + 995515121664 \ x^3 \ y^{10} \ z + 3690855383040 \ x^3 \ y^9 \ z^2 + 8200019681280 \ x^3 \ y^8 \ z^3 \\
& + 12130253936640 \ x^3 \ y^7 \ z^4 + 12545349755904 \ x^3 \ y^6 \ z^5 + 9256129376256 \ x^3 \ y^5 \ z^6 \\
& + 4872055910400 \ x^3 \ y^4 \ z^7 + 1792917504000 \ x^3 \ y^3 \ z^8 + 439326720000 \ x^3 \ y^2 \ z^9 \\
& + 64512000000 \ x^3 \ y \ z^{10} + 4300800000 \ x^3 \ z^{11} + 91424858112 \ x^2 \ y^{12} \\
& + 822823723008 \ x^2 \ y^{11} \ z + 3390338488320 \ x^2 \ y^{10} \ z^2 + 8456799375360 \ x^2 \ y^9 \ z^3 \\
& + 14222702753280 \ x^2 \ y^8 \ z^4 + 16990421027328 \ x^2 \ y^7 \ z^5 + 14782940629632 \ x^2 \ y^6 \ z^6 \\
& + 9439122792960 \ x^2 \ y^5 \ z^7 + 4389723072000 \ x^2 \ y^4 \ z^8 + 1450068480000 \ x^2 \ y^3 \ z^9 \\
& + 322963200000 \ x^2 \ y^2 \ z^{10} + 43545600000 \ x^2 \ y \ z^{11} + 2688000000 \ x^2 \ z^{12} \\
& + 39182082048 \ x \ y^{13} + 385290473472 \ x \ y^{12} \ z + 1746867824640 \ x \ y^{11} \ z^2 \\
& + 4835177763840 \ x \ y^{10} \ z^3 + 9115729528320 \ x \ y^9 \ z^4 + 12361145709312 \ x \ y^8 \ z^5
\end{aligned} \tag{9}$$

$$\begin{aligned}
& + 12403553493888 \, x \, y^7 \, z^6 + 9324959993280 \, x \, y^6 \, z^7 + 5252425171200 \, x \, y^5 \, z^8 \\
& + 2189216160000 \, x \, y^4 \, z^9 + 656294400000 \, x \, y^3 \, z^{10} + 134006400000 \, x \, y^2 \, z^{11} \\
& + 16704000000 \, x \, y \, z^{12} + 960000000 \, x \, z^{13} + 7346640384 \, y^{14} + 78364164096 \, y^{13} \, z \\
& + 387739353600 \, y^{12} \, z^2 + 1179543928320 \, y^{11} \, z^3 + 2464695812160 \, y^{10} \, z^4 \\
& + 3742047559296 \, y^9 \, z^5 + 4257095297184 \, y^8 \, z^6 + 3686485232160 \, y^7 \, z^7 \\
& + 2441854718550 \, y^6 \, z^8 + 1231169463000 \, y^5 \, z^9 + 465120225000 \, y^4 \, z^{10} \\
& + 127672200000 \, y^3 \, z^{11} + 24070500000 \, y^2 \, z^{12} + 2790000000 \, y \, z^{13} + 150000000 \, z^{14} \\
& + 63700992 \, x^9 \, y^4 + 169869312 \, x^9 \, y^3 \, z + 169869312 \, x^9 \, y^2 \, z^2 + 75497472 \, x^9 \, y \, z^3 \\
& + 12582912 \, x^9 \, z^4 + 2579890176 \, x^8 \, y^5 + 8742961152 \, x^8 \, y^4 \, z + 11848384512 \, x^8 \, y^3 \, z^2 \\
& + 8026324992 \, x^8 \, y^2 \, z^3 + 2717908992 \, x^8 \, y \, z^4 + 368050176 \, x^8 \, z^5 \\
& + 27769651200 \, x^7 \, y^6 + 116238385152 \, x^7 \, y^5 \, z + 202473603072 \, x^7 \, y^4 \, z^2 \\
& + 187875459072 \, x^7 \, y^3 \, z^3 + 97950892032 \, x^7 \, y^2 \, z^4 + 27207401472 \, x^7 \, y \, z^5 \\
& + 3145728000 \, x^7 \, z^6 + 147107487744 \, x^6 \, y^7 + 735098499072 \, x^6 \, y^6 \, z \\
& + 1571905585152 \, x^6 \, y^5 \, z^2 + 1864671363072 \, x^6 \, y^4 \, z^3 + 1325309755392 \, x^6 \, y^3 \, z^4 \\
& + 564406714368 \, x^6 \, y^2 \, z^5 + 133359206400 \, x^6 \, y \, z^6 + 13487308800 \, x^6 \, z^7 \\
& + 458817343488 \, x^5 \, y^8 + 2667687063552 \, x^5 \, y^7 \, z + 6775927022592 \, x^5 \, y^6 \, z^2 \\
& + 9820522156032 \, x^5 \, y^5 \, z^3 + 8883020224512 \, x^5 \, y^4 \, z^4 + 5135203713024 \, x^5 \, y^3 \, z^5 \\
& + 1852836249600 \, x^5 \, y^2 \, z^6 + 381498163200 \, x^5 \, y \, z^7 + 34320384000 \, x^5 \, z^8 \\
& + 903243737088 \, x^4 \, y^9 + 5992984101888 \, x^4 \, y^8 \, z + 17648595353088 \, x^4 \, y^7 \, z^2 \\
& + 30276673475328 \, x^4 \, y^6 \, z^3 + 33345586649088 \, x^4 \, y^5 \, z^4 + 24451146155520 \, x^4 \, y^4 \, z^5 \\
& + 11937010176000 \, x^4 \, y^3 \, z^6 + 3741437952000 \, x^4 \, y^2 \, z^7 + 683182080000 \, x^4 \, y \, z^8 \\
& + 55372800000 \, x^4 \, z^9 + 1141540936704 \, x^3 \, y^{10} + 8513516648448 \, x^3 \, y^9 \, z \\
& + 28537041996288 \, x^3 \, y^8 \, z^2 + 56615384222208 \, x^3 \, y^7 \, z^3 + 73620449961408 \, x^3 \, y^6 \, z^4 \\
& + 65565477298944 \, x^3 \, y^5 \, z^5 + 40500456192000 \, x^3 \, y^4 \, z^6 + 17134032384000 \, x^3 \, y^3 \, z^7 \\
& + 4751187840000 \, x^3 \, y^2 \, z^8 + 779788800000 \, x^3 \, y \, z^9 + 57523200000 \, x^3 \, z^{10} \\
& + 902004180480 \, x^2 \, y^{11} + 7470853026048 \, x^2 \, y^{10} \, z + 28095412163328 \, x^2 \, y^9 \, z^2 \\
& + 63325084825728 \, x^2 \, y^8 \, z^3 + 95048830975968 \, x^2 \, y^7 \, z^4 + 99755309738448 \, x^2 \, y^6 \, z^5 \\
& + 74699224488000 \, x^2 \, y^5 \, z^6 + 39910393872000 \, x^2 \, y^4 \, z^7 + 14909780160000 \, x^2 \, y^3 \, z^8 \\
& + 3709216800000 \, x^2 \, y^2 \, z^9 + 553046400000 \, x^2 \, y \, z^{10} + 37440000000 \, x^2 \, z^{11} \\
& + 406922247936 \, x \, y^{12} + 3706380073728 \, x \, y^{11} \, z + 15457773526848 \, x \, y^{10} \, z^2 \\
& + 39033176531328 \, x \, y^9 \, z^3 + 66465400400208 \, x \, y^8 \, z^4 + 80401310191152 \, x \, y^7 \, z^5 \\
& + 70847294849100 \, x \, y^6 \, z^6 + 45819827377200 \, x \, y^5 \, z^7 + 21585994357500 \, x \, y^4 \, z^8 \\
& + 7224171300000 \, x \, y^3 \, z^9 + 1630295100000 \, x \, y^2 \, z^{10} + 222750000000 \, x \, y \, z^{11} \\
& + 13935000000 \, x \, z^{12} + 80200824192 \, y^{13} + 796804371648 \, y^{12} \, z \\
& + 3650514995808 \, y^{11} \, z^2 + 10211628894768 \, y^{10} \, z^3 + 19458955024488 \, y^9 \, z^4 \\
& + 26674016049396 \, y^8 \, z^5 + 27060291079650 \, y^7 \, z^6 + 20570454583425 \, y^6 \, z^7
\end{aligned}$$

$$\begin{aligned}
& + 11717096897250 \, y^5 \, z^8 + 4939276471875 \, y^4 \, z^9 + 1497744675000 \, y^3 \, z^{10} \\
& + 309369375000 \, y^2 \, z^{11} + 39015000000 \, y \, z^{12} + 2268750000 \, z^{13} + 254803968 \, x^9 \, y^3 \\
& + 509607936 \, x^9 \, y^2 \, z + 339738624 \, x^9 \, y \, z^2 + 75497472 \, x^9 \, z^3 + 8153726976 \, x^8 \, y^4 \\
& + 22316580864 \, x^8 \, y^3 \, z + 22889889792 \, x^8 \, y^2 \, z^2 + 10428088320 \, x^8 \, y \, z^3 \\
& + 1780482048 \, x^8 \, z^4 + 89030098944 \, x^7 \, y^5 + 313074450432 \, x^7 \, y^4 \, z \\
& + 439749181440 \, x^7 \, y^3 \, z^2 + 308426047488 \, x^7 \, y^2 \, z^3 + 108022726656 \, x^7 \, y \, z^4 \\
& + 15115223040 \, x^7 \, z^5 + 498835501056 \, x^6 \, y^6 + 2151144677376 \, x^6 \, y^5 \, z \\
& + 3859181273088 \, x^6 \, y^4 \, z^2 + 3686903709696 \, x^6 \, y^3 \, z^3 + 1978388250624 \, x^6 \, y^2 \, z^4 \\
& + 565378154496 \, x^6 \, y \, z^5 + 67228401664 \, x^6 \, z^6 + 1661368651776 \, x^5 \, y^7 \\
& + 8501306959872 \, x^5 \, y^6 \, z + 18615972427776 \, x^5 \, y^5 \, z^2 + 22614004445184 \, x^5 \, y^4 \, z^3 \\
& + 16458591854592 \, x^5 \, y^3 \, z^4 + 7176953217024 \, x^5 \, y^2 \, z^5 + 1736223031296 \, x^5 \, y \, z^6 \\
& + 179760660480 \, x^5 \, z^7 + 3495569789952 \, x^4 \, y^8 + 20719749694464 \, x^4 \, y^7 \, z \\
& + 53659399470336 \, x^4 \, y^6 \, z^2 + 79302521138688 \, x^4 \, y^5 \, z^3 + 73152310671360 \, x^4 \, y^4 \, z^4 \\
& + 43129213655040 \, x^4 \, y^3 \, z^5 + 15871603138560 \, x^4 \, y^2 \, z^6 + 3333202329600 \, x^4 \, y \, z^7 \\
& + 305854464000 \, x^4 \, z^8 + 4712572514304 \, x^3 \, y^9 + 31771004875776 \, x^3 \, y^8 \, z \\
& + 95082554515968 \, x^3 \, y^7 \, z^2 + 165792662403840 \, x^3 \, y^6 \, z^3 + 185618292688512 \, x^3 \, y^5 \, z^4 \\
& + 138375990593280 \, x^3 \, y^4 \, z^5 + 68688642539520 \, x^3 \, y^3 \, z^6 + 21892698316800 \, x^3 \, y^2 \, z^7 \\
& + 4065433344000 \, x^3 \, y \, z^8 + 335127040000 \, x^3 \, z^9 + 3960972907776 \, x^2 \, y^{10} \\
& + 29940915437568 \, x^2 \, y^9 \, z + 101736873141120 \, x^2 \, y^8 \, z^2 + 204636190879872 \, x^2 \, y^7 \, z^3 \\
& + 269828346893904 \, x^2 \, y^6 \, z^4 + 243705421418400 \, x^2 \, y^5 \, z^5 \\
& + 152688899612160 \, x^2 \, y^4 \, z^6 + 65526697267200 \, x^2 \, y^3 \, z^7 + 18434114784000 \, x^2 \, y^2 \, z^8 \\
& + 3069766080000 \, x^2 \, y \, z^9 + 229785600000 \, x^2 \, z^{10} + 1895025072384 \, x \, y^{11} \\
& + 15877336984704 \, x \, y^{10} \, z + 60409685475072 \, x \, y^9 \, z^2 + 137775516473664 \, x \, y^8 \, z^3 \\
& + 209280212491536 \, x \, y^7 \, z^4 + 222311033014824 \, x \, y^6 \, z^5 + 168516140461416 \, x \, y^5 \, z^6 \\
& + 91152131144400 \, x \, y^4 \, z^7 + 34479462294000 \, x \, y^3 \, z^8 + 8686220220000 \, x \, y^2 \, z^9 \\
& + 1311651000000 \, x \, y \, z^{10} + 89938800000 \, x \, z^{11} + 394915932864 \, y^{12} \\
& + 3633083731008 \, y^{11} \, z + 15305974136784 \, y^{10} \, z^2 + 39047416315776 \, y^9 \, z^3 \\
& + 67182094253268 \, y^8 \, z^4 + 82124911161396 \, y^7 \, z^5 + 73137890612259 \, y^6 \, z^6 \\
& + 47811513937770 \, y^5 \, z^7 + 22769968239000 \, y^4 \, z^8 + 7704420097500 \, y^3 \, z^9 \\
& + 1758039525000 \, y^2 \, z^{10} + 242905950000 \, y \, z^{11} + 15368500000 \, z^{12} + 382205952 \, x^9 \, y^2 \\
& + 509607936 \, x^9 \, y \, z + 169869312 \, x^9 \, z^2 + 12549095424 \, x^8 \, y^3 + 25958154240 \, x^8 \, y^2 \, z \\
& + 17878745088 \, x^8 \, y \, z^2 + 4100456448 \, x^8 \, z^3 + 150238789632 \, x^7 \, y^4 \\
& + 425734963200 \, x^7 \, y^3 \, z + 451693117440 \, x^7 \, y^2 \, z^2 + 212671660032 \, x^7 \, y \, z^3 \\
& + 37495504896 \, x^7 \, z^4 + 928073687040 \, x^6 \, y^5 + 3356496838656 \, x^6 \, y^4 \, z \\
& + 4847847211008 \, x^6 \, y^3 \, z^2 + 3495385792512 \, x^6 \, y^2 \, z^3 + 1258172448768 \, x^6 \, y \, z^4 \\
& + 180879753216 \, x^6 \, z^5 + 3389756221440 \, x^5 \, y^6 + 14951135416320 \, x^5 \, y^5 \, z
\end{aligned}$$

$$\begin{aligned}
& + 27435931656192 \, x^5 y^4 z^2 + 26811418411008 \, x^5 y^3 z^3 + 14716478877696 \, x^5 y^2 z^4 \\
& + 4301846102016 \, x^5 y z^5 + 523202838528 \, x^5 z^6 + 7766255490048 \, x^4 y^7 \\
& + 40479720897024 \, x^4 y^6 z + 90303901429248 \, x^4 y^5 z^2 + 111769306444800 \, x^4 y^4 z^3 \\
& + 82891439216640 \, x^4 y^3 z^4 + 36835695406080 \, x^4 y^2 z^5 + 9081928028160 \, x^4 y z^6 \\
& + 958374604800 \, x^4 z^7 + 11323359691776 \, x^3 y^8 + 68157507179520 \, x^3 y^7 z \\
& + 179274043867392 \, x^3 y^6 z^2 + 269133358966272 \, x^3 y^5 z^3 \\
& + 252220125749760 \, x^3 y^4 z^4 + 151095688243200 \, x^3 y^3 z^5 + 56504511982080 \, x^3 y^2 z^6 \\
& + 12060182476800 \, x^3 y z^7 + 1124812032000 \, x^3 z^8 + 10230453715968 \, x^2 y^9 \\
& + 69875242064640 \, x^2 y^8 z + 211893044031360 \, x^2 y^7 z^2 + 374429912793408 \, x^2 y^6 z^3 \\
& + 424892417599584 \, x^2 y^5 z^4 + 321094630595520 \, x^2 y^4 z^5 \\
& + 161595685739520 \, x^2 y^3 z^6 + 52224250780800 \, x^2 y^2 z^7 + 9834683904000 \, x^2 y z^8 \\
& + 822229440000 \, x^2 z^9 + 5233234158720 \, x y^{10} + 40003454582784 \, x y^9 z \\
& + 137479174264512 \, x y^8 z^2 + 279722928253248 \, x y^7 z^3 + 373147155394632 \, x y^6 z^4 \\
& + 341006966075664 \, x y^5 z^5 + 216206200369440 \, x y^4 z^6 + 93906815788800 \, x y^3 z^7 \\
& + 26740719621000 \, x y^2 z^8 + 4507959420000 \, x y z^9 + 341642100000 \, x z^{10} \\
& + 1160667144000 \, y^{11} + 9819867595680 \, y^{10} z + 37733323808448 \, y^9 z^2 \\
& + 86923245472272 \, y^8 z^3 + 133380343645524 \, y^7 z^4 + 143145678505554 \, y^6 z^5 \\
& + 109639075923522 \, y^5 z^6 + 59930733786300 \, y^4 z^7 + 22911499255500 \, y^3 z^8 \\
& + 5834242046250 \, y^2 z^9 + 890597925000 \, y z^{10} + 61740225000 \, z^{11} + 254803968 \, x^9 y \\
& + 169869312 \, x^9 z + 10227548160 \, x^8 y^2 + 14210039808 \, x^8 y z + 4927782912 \, x^8 z^2 \\
& + 145694785536 \, x^7 y^3 + 311844667392 \, x^7 y^2 z + 222106484736 \, x^7 y z^2 \\
& + 52642185216 \, x^7 z^3 + 1040974073856 \, x^6 y^4 + 3030896738304 \, x^6 y^3 z \\
& + 3303760822272 \, x^6 y^2 z^2 + 1597900259328 \, x^6 y z^3 + 289347665920 \, x^6 z^4 \\
& + 4302540177408 \, x^5 y^5 + 15903261702144 \, x^5 y^4 z + 23477521489920 \, x^5 y^3 z^2 \\
& + 17303561404416 \, x^5 y^2 z^3 + 6367066398720 \, x^5 y z^4 + 935746486272 \, x^5 z^5 \\
& + 10972175874048 \, x^4 y^6 + 49266878717952 \, x^4 y^5 z + 92051003093760 \, x^4 y^4 z^2 \\
& + 91605414481920 \, x^4 y^3 z^3 + 51210070179840 \, x^4 y^2 z^4 + 15247785314304 \, x^4 y z^5 \\
& + 1889145552896 \, x^4 z^6 + 17581821659136 \, x^3 y^7 + 93020676950016 \, x^3 y^6 z \\
& + 210674793259008 \, x^3 y^5 z^2 + 264766771319040 \, x^3 y^4 z^3 \\
& + 199412534499840 \, x^3 y^3 z^4 + 90007027835904 \, x^3 y^2 z^5 + 22542859293696 \, x^3 y z^6 \\
& + 2416816916480 \, x^3 z^7 + 17284130438400 \, x^2 y^8 + 105368395249152 \, x^2 y^7 z \\
& + 280742342770944 \, x^2 y^6 z^2 + 426991822009344 \, x^2 y^5 z^3 \\
& + 405470287963440 \, x^2 y^4 z^4 + 246162700422144 \, x^2 y^3 z^5 + 93305111953536 \, x^2 y^2 z^6 \\
& + 20187708629760 \, x^2 y z^7 + 1908885638400 \, x^2 z^8 + 9543124615680 \, x y^9 \\
& + 65900812913280 \, x y^8 z + 202077599914368 \, x y^7 z^2 + 361133323661952 \, x y^6 z^3 \\
& + 414507301413120 \, x y^5 z^4 + 316885229738424 \, x y^4 z^5 + 161351438252256 \, x y^3 z^6
\end{aligned}$$

$$\begin{aligned}
& + 52765061783040 \ x \ y^2 \ z^7 + 10055908753200 \ x \ y \ z^8 + 850931332000 \ x \ z^9 \\
& + 2269476983808 \ y^{10} + 17515627712640 \ y^9 \ z + 60784484752080 \ y^8 \ z^2 \\
& + 124901106218784 \ y^7 \ z^3 + 168288789984120 \ y^6 \ z^4 + 155356397057952 \ y^5 \ z^5 \\
& + 99512660715741 \ y^4 \ z^6 + 43672136400720 \ y^3 \ z^7 + 12566942280900 \ y^2 \ z^8 \\
& + 2141100025500 \ y \ z^9 + 164013285000 \ z^{10} + 63963136 \ x^9 + 4246732800 \ x^8 \ y \\
& + 2975072256 \ x^8 \ z + 81647861760 \ x^7 \ y^2 + 117357281280 \ x^7 \ y \ z \\
& + 42094166016 \ x^7 \ z^2 + 722308202496 \ x^6 \ y^3 + 1587500163072 \ x^6 \ y^2 \ z \\
& + 1161021063168 \ x^6 \ y \ z^2 + 282559610880 \ x^6 \ z^3 + 3523859500032 \ x^5 \ y^4 \\
& + 10480420970496 \ x^5 \ y^3 \ z + 11671046092800 \ x^5 \ y^2 \ z^2 + 5767642128384 \ x^5 \ y \ z^3 \\
& + 1067233542144 \ x^5 \ z^4 + 10290307392000 \ x^4 \ y^5 + 38705849015040 \ x^4 \ y^4 \ z \\
& + 58158061793280 \ x^4 \ y^3 \ z^2 + 43634977067520 \ x^4 \ y^2 \ z^3 + 16347380520960 \ x^4 \ y \ z^4 \\
& + 2446459121664 \ x^4 \ z^5 + 18491456381760 \ x^3 \ y^6 + 84256132919040 \ x^3 \ y^5 \ z \\
& + 159779812705920 \ x^3 \ y^4 \ z^2 + 161412520780800 \ x^3 \ y^3 \ z^3 + 91615004657280 \ x^3 \ y^2 \ z^4 \\
& + 27700144012800 \ x^3 \ y \ z^5 + 3485536966144 \ x^3 \ z^6 + 20077566362784 \ x^2 \ y^7 \\
& + 107563901979312 \ x^2 \ y^6 \ z + 246723853803264 \ x^2 \ y^5 \ z^2 + 314082568513440 \ x^2 \ y^4 \ z^3 \\
& + 239653226655360 \ x^2 \ y^3 \ z^4 + 109603541360736 \ x^2 \ y^2 \ z^5 + 27818860526208 \ x^2 \ y \ z^6 \\
& + 3022865677440 \ x^2 \ z^7 + 12102572500272 \ x \ y^8 + 74585836516176 \ x \ y^7 \ z \\
& + 200924594032572 \ x \ y^6 \ z^2 + 309020101010640 \ x \ y^5 \ z^3 + 296777071906380 \ x \ y^4 \ z^4 \\
& + 182246427682272 \ x \ y^3 \ z^5 + 69882437674152 \ x \ y^2 \ z^6 + 15298001975520 \ x \ y \ z^7 \\
& + 1463762602800 \ x \ z^8 + 3113734863960 \ y^9 + 21708052308828 \ y^8 \ z \\
& + 67211369054730 \ y^7 \ z^2 + 121294734698961 \ y^6 \ z^3 + 140608491012126 \ y^5 \ z^4 \\
& + 108577847603403 \ y^4 \ z^5 + 55850422310496 \ y^3 \ z^6 + 18453064862790 \ y^2 \ z^7 \\
& + 3553573372200 \ y \ z^8 + 303887729500 \ z^9 + 706215936 \ x^8 + 24536088576 \ x^7 \ y \\
& + 17769824256 \ x^7 \ z + 302819180544 \ x^6 \ y^2 + 446697062400 \ x^6 \ y \ z \\
& + 164447617024 \ x^6 \ z^2 + 1860120391680 \ x^5 \ y^3 + 4174469554176 \ x^5 \ y^2 \ z \\
& + 3118002499584 \ x^5 \ y \ z^2 + 775113252864 \ x^5 \ z^3 + 6474660936192 \ x^4 \ y^4 \\
& + 19590912986112 \ x^4 \ y^3 \ z + 22199956457472 \ x^4 \ y^2 \ z^2 + 11165815022592 \ x^4 \ y \ z^3 \\
& + 2103192061952 \ x^4 \ z^4 + 13405812958080 \ x^3 \ y^5 + 51160704129792 \ x^3 \ y^4 \ z \\
& + 78009728666112 \ x^3 \ y^3 \ z^2 + 59406471263232 \ x^3 \ y^2 \ z^3 + 22593610843392 \ x^3 \ y \ z^4 \\
& + 3433119858176 \ x^3 \ z^5 + 16390174452912 \ x^2 \ y^6 + 75615057530208 \ x^2 \ y^5 \ z \\
& + 145210359932352 \ x^2 \ y^4 \ z^2 + 148578307661952 \ x^2 \ y^3 \ z^3 + 85427867192832 \ x^2 \ y^2 \ z^4 \\
& + 26169806211264 \ x^2 \ y \ z^5 + 3336896227968 \ x^2 \ z^6 + 10942271232624 \ x \ y^7 \\
& + 59259019645368 \ x \ y^6 \ z + 137421803673288 \ x \ y^5 \ z^2 + 176892619625712 \ x \ y^4 \ z^3 \\
& + 136500701541552 \ x \ y^3 \ z^4 + 63143067335904 \ x \ y^2 \ z^5 + 16212609925584 \ x \ y \ z^6 \\
& + 1782407818720 \ x \ z^7 + 3079274103756 \ y^8 + 19158363028188 \ y^7 \ z \\
& + 52110224521443 \ y^6 \ z^2 + 80932116334698 \ y^5 \ z^3 + 78499219005522 \ y^4 \ z^4
\end{aligned}$$

$$\begin{aligned}
& + 48691285213356 \, y^3 \, z^5 + 18861389543448 \, y^2 \, z^6 + 4171667410380 \, y \, z^7 \\
& + 403339195200 \, z^8 + 3048275968 \, x^7 + 70015451136 \, x^6 \, y + 52011450368 \, x^6 \, z \\
& + 608663697408 \, x^5 \, y^2 + 916574773248 \, x^5 \, y \, z + 344533512192 \, x^5 \, z^2 \\
& + 2689784368128 \, x^4 \, y^3 + 6140398358016 \, x^4 \, y^2 \, z + 4666458138624 \, x^4 \, y \, z^2 \\
& + 1180546327552 \, x^4 \, z^3 + 6673100215680 \, x^3 \, y^4 + 20484718276608 \, x^3 \, y^3 \, z \\
& + 23554917455616 \, x^3 \, y^2 \, z^2 + 12024338248704 \, x^3 \, y \, z^3 + 2299192956672 \, x^3 \, z^4 \\
& + 9432806946912 \, x^2 \, y^5 + 36447514984800 \, x^2 \, y^4 \, z + 56278456000128 \, x^2 \, y^3 \, z^2 \\
& + 43407700030656 \, x^2 \, y^2 \, z^3 + 16723796765184 \, x^2 \, y \, z^4 + 2574718512192 \, x^2 \, z^5 \\
& + 7107393676464 \, x \, y^6 + 33145978179312 \, x \, y^5 \, z + 64355175711720 \, x \, y^4 \, z^2 \\
& + 66584343299328 \, x \, y^3 \, z^3 + 38718134153496 \, x \, y^2 \, z^4 + 11997215450784 \, x \, y \, z^5 \\
& + 1547583814992 \, x \, z^6 + 2218557605184 \, y^7 + 12130117243308 \, y^6 \, z \\
& + 28403481759030 \, y^5 \, z^2 + 36922355486010 \, y^4 \, z^3 + 28776425113548 \, y^3 \, z^4 \\
& + 13446476753094 \, y^2 \, z^5 + 3487989922248 \, y \, z^6 + 387460366940 \, z^7 + 6812434432 \, x^6 \\
& + 111559938048 \, x^5 \, y + 84591943680 \, x^5 \, z + 702623259648 \, x^4 \, y^2 \\
& + 1076280935424 \, x^4 \, y \, z + 411630276608 \, x^4 \, z^2 + 2222873957376 \, x^3 \, y^3 \\
& + 5148371174400 \, x^3 \, y^2 \, z + 3970387917312 \, x^3 \, y \, z^2 + 1019518518272 \, x^3 \, z^3 \\
& + 3775868878608 \, x^2 \, y^4 + 11736139144320 \, x^2 \, y^3 \, z + 13666778334720 \, x^2 \, y^2 \, z^2 \\
& + 7066720683648 \, x^2 \, y \, z^3 + 1368946502784 \, x^2 \, z^4 + 3295653336144 \, x \, y^5 \\
& + 12873445559784 \, x \, y^4 \, z + 20098628865792 \, x \, y^3 \, z^2 + 15676882299648 \, x \, y^2 \, z^3 \\
& + 6108967518672 \, x \, y \, z^4 + 951423652768 \, x \, z^5 + 1162509061644 \, y^6 \\
& + 5473949580612 \, y^5 \, z + 10732429995993 \, y^4 \, z^2 + 11214823513032 \, y^3 \, z^3 \\
& + 6587216900244 \, y^2 \, z^4 + 2062039549332 \, y \, z^5 + 268758157680 \, z^6 + 8672505856 \, x^5 \\
& + 103481573376 \, x^4 \, y + 79828347904 \, x^4 \, z + 468306110592 \, x^3 \, y^2 \\
& + 727889720832 \, x^3 \, y \, z + 282544080896 \, x^3 \, z^2 + 1016900815104 \, x^2 \, y^3 \\
& + 2385031213152 \, x^2 \, y^2 \, z + 1862979454080 \, x^2 \, y \, z^2 + 484631454464 \, x^2 \, z^3 \\
& + 1068355022256 \, x \, y^4 + 3357397133568 \, x \, y^3 \, z + 3953654936856 \, x \, y^2 \, z^2 \\
& + 2067676547616 \, x \, y \, z^3 + 405191689744 \, x \, z^4 + 437045917896 \, y^5 \\
& + 1723908481884 \, y^4 \, z + 2718219284208 \, y^3 \, z^2 + 2141617434210 \, y^2 \, z^3 \\
& + 843102262296 \, y \, z^4 + 132673219460 \, z^5 + 6459295744 \, x^4 + 55548075264 \, x^3 \, y \\
& + 43491345920 \, x^3 \, z + 172918993536 \, x^2 \, y^2 + 272219714496 \, x^2 \, y \, z \\
& + 107049159552 \, x^2 \, z^2 + 232627545216 \, x \, y^3 + 551714587200 \, x \, y^2 \, z \\
& + 435864653424 \, x \, y \, z^2 + 114700338464 \, x \, z^3 + 114711496920 \, y^4 \\
& + 364054211424 \, y^3 \, z + 433018534824 \, y^2 \, z^2 + 228774736596 \, y \, z^3 + 45297893920 \, z^4 \\
& + 2765323008 \, x^3 + 16398533376 \, x^2 \, y + 13006347840 \, x^2 \, z + 31706832960 \, x \, y^2 \\
& + 50475043968 \, x \, y \, z + 20076601616 \, x \, z^2 + 20078434656 \, y^3 + 48083577552 \, y^2 \, z \\
& + 38365098864 \, y \, z^2 + 10198627660 \, z^3 + 640114816 \, x^2 + 2372298240 \, x \, y
\end{aligned}$$

$$\begin{aligned}
& + 1901589568 \ x \ z + 2176824384 \ y^2 + 3495507072 \ y \ z + 1402867720 \ z^2 \\
& + 71753088 \ x + 129644352 \ y + 104367840 \ z + 3386880) / ((4 \ x + 6 \ y + 7 \\
& + 5 \ z)^2 (4 \ x + 6 \ y + 5 \ z + 1)^2 (4 \ x + 6 \ y + 5 \ z) (4 \ x + 6 \ y + 5 \ z + 2) (4 \ x \\
& + 6 \ y + 5 \ z + 3) (4 \ x + 6 \ y + 5 \ z + 4) (4 \ x + 6 \ y + 5 \ z + 5) (3 \ y + 2 \ z \\
& + 2)^2 (3 \ y + 2 \ z + 3)^2 (3 \ y + 2 \ z + 4)^2)
\end{aligned}$$

$$\begin{aligned}
> h := normal \left(subs \left(z = z + 1, \frac{1}{(4 \ x + 6 \ y + 5 \ z + 1)^2} \right) - \frac{1}{(4 \ x + 6 \ y + 5 \ z + 1)^2} \right. \\
& \left. + add \left(\frac{1}{4 \ x + 6 \ y + 5 \ z + 1}, l = 0..4 \right) + add \left(\frac{1}{(3 \ y + 2 \ z + 2 + 1)^2}, l = 0..1 \right) \right);
\end{aligned}$$

$$\begin{aligned}
h := & (6635520 \ x^7 \ y^4 + 17694720 \ x^7 \ y^3 \ z + 17694720 \ x^7 \ y^2 \ z^2 + 7864320 \ x^7 \ y \ z^3 \\
& + 1310720 \ x^7 \ z^4 + 69672960 \ x^6 \ y^5 + 243855360 \ x^6 \ y^4 \ z + 340623360 \ x^6 \ y^3 \ z^2 \\
& + 237404160 \ x^6 \ y^2 \ z^3 + 82575360 \ x^6 \ y \ z^4 + 11468800 \ x^6 \ z^5 + 313528320 \ x^5 \ y^6 \\
& + 1358622720 \ x^5 \ y^5 \ z + 2447262720 \ x^5 \ y^4 \ z^2 + 2345656320 \ x^5 \ y^3 \ z^3 \\
& + 1261854720 \ x^5 \ y^2 \ z^4 + 361267200 \ x^5 \ y \ z^5 + 43008000 \ x^5 \ z^6 + 783820800 \ x^4 \ y^7 \\
& + 4049740800 \ x^4 \ y^6 \ z + 8948620800 \ x^4 \ y^5 \ z^2 + 10962604800 \ x^4 \ y^4 \ z^3 \\
& + 8041420800 \ x^4 \ y^3 \ z^4 + 3532032000 \ x^4 \ y^2 \ z^5 + 860160000 \ x^4 \ y \ z^6 \\
& + 89600000 \ x^4 \ z^7 + 1175731200 \ x^3 \ y^8 + 7054387200 \ x^3 \ y^7 \ z \\
& + 18485107200 \ x^3 \ y^6 \ z^2 + 27629683200 \ x^3 \ y^5 \ z^3 + 25765387200 \ x^3 \ y^4 \ z^4 \\
& + 15349824000 \ x^3 \ y^3 \ z^5 + 5705280000 \ x^3 \ y^2 \ z^6 + 1209600000 \ x^3 \ y \ z^7 \\
& + 112000000 \ x^3 \ z^8 + 1058158080 \ x^2 \ y^9 + 7230746880 \ x^2 \ y^8 \ z \\
& + 21927386880 \ x^2 \ y^7 \ z^2 + 38730545280 \ x^2 \ y^6 \ z^3 + 43911110880 \ x^2 \ y^5 \ z^4 \\
& + 33138882000 \ x^2 \ y^4 \ z^5 + 16647120000 \ x^2 \ y^3 \ z^6 + 5367600000 \ x^2 \ y^2 \ z^7 \\
& + 1008000000 \ x^2 \ y \ z^8 + 84000000 \ x^2 \ z^9 + 529079040 \ x \ y^{10} + 4056272640 \ x \ y^9 \ z \\
& + 13976504640 \ x \ y^8 \ z^2 + 28501683840 \ x \ y^7 \ z^3 + 38093282640 \ x \ y^6 \ z^4 \\
& + 34865737200 \ x \ y^5 \ z^5 + 22131427500 \ x \ y^4 \ z^6 + 9620100000 \ x \ y^3 \ z^7 \\
& + 2740500000 \ x \ y^2 \ z^8 + 462000000 \ x \ y \ z^9 + 35000000 \ x \ z^{10} + 113374080 \ y^{11} \\
& + 963679680 \ y^{10} \ z + 3719299680 \ y^9 \ z^2 + 8603308080 \ y^8 \ z^3 + 13252432680 \ y^7 \ z^4 \\
& + 14273601300 \ y^6 \ z^5 + 10968473250 \ y^5 \ z^6 + 6013490625 \ y^4 \ z^7 + 2305125000 \ y^3 \ z^8 \\
& + 588375000 \ y^2 \ z^9 + 90000000 \ y \ z^{10} + 6250000 \ z^{11} + 1179648 \ x^8 \ y^2 \\
& + 1572864 \ x^8 \ y \ z + 524288 \ x^8 \ z^2 + 36274176 \ x^7 \ y^3 + 74907648 \ x^7 \ y^2 \ z \\
& + 51511296 \ x^7 \ y \ z^2 + 11796480 \ x^7 \ z^3 + 341397504 \ x^6 \ y^4 + 973873152 \ x^6 \ y^3 \ z \\
& + 1039417344 \ x^6 \ y^2 \ z^2 + 492011520 \ x^6 \ y \ z^3 + 87162880 \ x^6 \ z^4 + 1581576192 \ x^5 \ y^5 \\
& + 5784016896 \ x^5 \ y^4 \ z + 8442427392 \ x^5 \ y^3 \ z^2 + 6147993600 \ x^5 \ y^2 \ z^3 \\
& + 2233835520 \ x^5 \ y \ z^4 + 323993600 \ x^5 \ z^5 + 4206504960 \ x^4 \ y^6 \\
& + 18802990080 \ x^4 \ y^5 \ z + 34953327360 \ x^4 \ y^4 \ z^2 + 34587302400 \ x^4 \ y^3 \ z^3 \\
& + 19214899200 \ x^4 \ y^2 \ z^4 + 5682432000 \ x^4 \ y \ z^5 + 698880000 \ x^4 \ z^6)
\end{aligned}$$

$$\begin{aligned}
& + 6772211712 \, x^3 y^7 + 35810159616 \, x^3 y^6 z + 81021814272 \, x^3 y^5 z^2 \\
& + 101675347200 \, x^3 y^4 z^3 + 76430390400 \, x^3 y^3 z^4 + 34415136000 \, x^3 y^2 z^5 \\
& + 8594880000 \, x^3 y z^6 + 918400000 \, x^3 z^7 + 6548822784 \, x^2 y^8 \\
& + 40006213632 \, x^2 y^7 z + 106776641664 \, x^2 y^6 z^2 + 162624309120 \, x^2 y^5 z^3 \\
& + 154584385200 \, x^2 y^4 z^4 + 93909564000 \, x^2 y^3 z^5 + 35605080000 \, x^2 y^2 z^6 \\
& + 7702800000 \, x^2 y z^7 + 728000000 \, x^2 z^8 + 3512077056 \, x y^9 + 24346873728 \, x y^8 z \\
& + 74926550016 \, x y^7 z^2 + 134348518080 \, x y^6 z^3 + 154676556720 \, x y^5 z^4 \\
& + 118576143000 \, x y^4 z^5 + 60526305000 \, x y^3 z^6 + 19836450000 \, x y^2 z^7 \\
& + 3787500000 \, x y z^8 + 321000000 \, x z^9 + 804955968 \, y^{10} + 6244392384 \, y^9 z \\
& + 21776536368 \, y^8 z^2 + 44957721600 \, y^7 z^3 + 60847457580 \, y^6 z^4 \\
& + 56411793900 \, y^5 z^5 + 36280558125 \, y^4 z^6 + 15982818750 \, y^3 z^7 + 4615593750 \, y^2 z^8 \\
& + 789000000 \, y z^9 + 60625000 \, z^{10} + 1966080 \, x^8 y + 1310720 \, x^8 z + 57655296 \, x^7 y^2 \\
& + 80805888 \, x^7 y z + 28246016 \, x^7 z^2 + 597639168 \, x^6 y^3 + 1296175104 \, x^6 y^2 z \\
& + 934821888 \, x^6 y z^2 + 224215040 \, x^6 z^3 + 3097046016 \, x^5 y^4 + 9155248128 \, x^5 y^3 z \\
& + 10127379456 \, x^5 y^2 z^2 + 4968468480 \, x^5 y z^3 + 912158720 \, x^5 z^4 \\
& + 9171325440 \, x^4 y^5 + 34442392320 \, x^4 y^4 z + 51645219840 \, x^4 y^3 z^2 \\
& + 38649888000 \, x^4 y^2 z^3 + 14435942400 \, x^4 y z^4 + 2152832000 \, x^4 z^5 \\
& + 16305338880 \, x^3 y^6 + 74392680960 \, x^3 y^5 z + 141208997760 \, x^3 y^4 z^2 \\
& + 142734182400 \, x^3 y^3 z^3 + 81029563200 \, x^3 y^2 z^4 + 24495072000 \, x^3 y z^5 \\
& + 3080480000 \, x^3 z^6 + 17270371584 \, x^2 y^7 + 92824071552 \, x^2 y^6 z \\
& + 213545398464 \, x^2 y^5 z^2 + 272574914400 \, x^2 y^4 z^3 + 208479268800 \, x^2 y^3 z^4 \\
& + 95546142000 \, x^2 y^2 z^5 + 24294360000 \, x^2 y z^6 + 2643800000 \, x^2 z^7 \\
& + 10070557632 \, x y^8 + 62344826496 \, x y^7 z + 168677279712 \, x y^6 z^2 \\
& + 260493939360 \, x y^5 z^3 + 251150147100 \, x y^4 z^4 + 154794672000 \, x y^3 z^5 \\
& + 59560402500 \, x y^2 z^6 + 13080150000 \, x y z^7 + 1255250000 \, x z^8 + 2493599904 \, y^9 \\
& + 17479238832 \, y^8 z + 54404406864 \, y^7 z^2 + 98685517320 \, y^6 z^3 \\
& + 114966388530 \, y^5 z^4 + 89201766375 \, y^4 z^5 + 46095007500 \, y^3 z^6 \\
& + 15297159375 \, y^2 z^7 + 2958281250 \, y z^8 + 254000000 \, z^9 + 851968 \, x^8 \\
& + 36274176 \, x^7 y + 25886720 \, x^7 z + 486125568 \, x^6 y^2 + 711647232 \, x^6 y z \\
& + 259866624 \, x^6 z^2 + 3058587648 \, x^5 y^3 + 6846363648 \, x^5 y^2 z + 5097977856 \, x^5 y z^2 \\
& + 1262817280 \, x^5 z^3 + 10586972160 \, x^4 y^4 + 32055160320 \, x^4 y^3 z \\
& + 36334137600 \, x^4 y^2 z^2 + 18272663040 \, x^4 y z^3 + 3440074240 \, x^4 z^4 \\
& + 21452055552 \, x^3 y^5 + 82093824000 \, x^3 y^4 z + 125486012160 \, x^3 y^3 z^2 \\
& + 95768720640 \, x^3 y^2 z^3 + 36491072640 \, x^3 y z^4 + 5553491200 \, x^3 z^5 \\
& + 25435171584 \, x^2 y^6 + 117829728000 \, x^2 y^5 z + 227168064000 \, x^2 y^4 z^2 \\
& + 233298671040 \, x^2 y^3 z^3 + 134605970640 \, x^2 y^2 z^4 + 41368586400 \, x^2 y z^5
\end{aligned}$$

$$\begin{aligned}
& + 5290696000 \, x^2 \, z^6 + 16381014912 \, x \, y^7 + 89162322048 \, x \, y^6 \, z \\
& + 207782076096 \, x \, y^5 \, z^2 + 268730317440 \, x \, y^4 \, z^3 + 208315878840 \, x \, y^3 \, z^4 \\
& + 96786948600 \, x \, y^2 \, z^5 + 24955593000 \, x \, y \, z^6 + 2754630000 \, x \, z^7 + 4433346432 \, y^8 \\
& + 27739768032 \, y^7 \, z + 75871415664 \, y^6 \, z^2 + 118477060560 \, y^5 \, z^3 \\
& + 115526528640 \, y^4 \, z^4 + 72029942550 \, y^3 \, z^5 + 28042770375 \, y^2 \, z^6 + 6232751250 \, y \, z^7 \\
& + 605478125 \, z^8 + 7847936 \, x^7 + 185991168 \, x^6 \, y + 137728000 \, x^6 \, z \\
& + 1613472768 \, x^5 \, y^2 + 2430283776 \, x^5 \, y \, z + 913390592 \, x^5 \, z^2 + 6988654080 \, x^4 \, y^3 \\
& + 15994149120 \, x^4 \, y^2 \, z + 12181693440 \, x^4 \, y \, z^2 + 3087622400 \, x^4 \, z^3 \\
& + 16830110016 \, x^3 \, y^4 + 51868947456 \, x^3 \, y^3 \, z + 59866022016 \, x^3 \, y^2 \, z^2 \\
& + 30667685376 \, x^3 \, y \, z^3 + 5883186496 \, x^3 \, z^4 + 22971167136 \, x^2 \, y^5 \\
& + 89193139632 \, x^2 \, y^4 \, z + 138375041472 \, x^2 \, y^3 \, z^2 + 107216533152 \, x^2 \, y^2 \, z^3 \\
& + 41489035392 \, x^2 \, y \, z^4 + 6414349360 \, x^2 \, z^5 + 16664531760 \, x \, y^6 \\
& + 78143710608 \, x \, y^5 \, z + 152537802588 \, x \, y^4 \, z^2 + 158651664768 \, x \, y^3 \, z^3 \\
& + 92727899028 \, x \, y^2 \, z^4 + 28876343280 \, x \, y \, z^5 + 3743011700 \, x \, z^6 + 5001074136 \, y^7 \\
& + 27504478908 \, y^6 \, z + 64776921642 \, y^5 \, z^2 + 84685840929 \, y^4 \, z^3 + 66372956334 \, y^3 \, z^4 \\
& + 31185577485 \, y^2 \, z^5 + 8133309300 \, y \, z^6 + 908279875 \, z^7 + 26824704 \, x^6 \\
& + 430381056 \, x^5 \, y + 327157760 \, x^5 \, z + 2628283392 \, x^4 \, y^2 + 4042354176 \, x^4 \, y \, z \\
& + 1551924992 \, x^4 \, z^2 + 8021711232 \, x^3 \, y^3 + 18671705856 \, x^3 \, y^2 \, z \\
& + 14468980992 \, x^3 \, y \, z^2 + 3732637440 \, x^3 \, z^3 + 13114268064 \, x^2 \, y^4 \\
& + 40987664928 \, x^2 \, y^3 \, z + 47989554624 \, x^2 \, y^2 \, z^2 + 24945936192 \, x^2 \, y \, z^3 \\
& + 4857525552 \, x^2 \, z^4 + 11006259264 \, x \, y^5 + 43244664912 \, x \, y^4 \, z \\
& + 67906469448 \, x \, y^3 \, z^2 + 53269238736 \, x \, y^2 \, z^3 + 20874654936 \, x \, y \, z^4 \\
& + 3269039880 \, x \, z^5 + 3732532488 \, y^6 + 17681694768 \, y^5 \, z + 34875074394 \, y^4 \, z^2 \\
& + 36658938582 \, y^3 \, z^3 + 21658796712 \, y^2 \, z^4 + 6819411870 \, y \, z^5 + 893922425 \, z^6 \\
& + 45110272 \, x^5 + 517685760 \, x^4 \, y + 401511680 \, x^4 \, z + 2249773632 \, x^3 \, y^2 \\
& + 3517383936 \, x^3 \, y \, z + 1373217152 \, x^3 \, z^2 + 4691140704 \, x^2 \, y^3 \\
& + 11069611632 \, x^2 \, y^2 \, z + 8698760064 \, x^2 \, y \, z^2 + 2276362080 \, x^2 \, z^3 \\
& + 4735621584 \, x \, y^4 + 14973894576 \, x \, y^3 \, z + 17741297484 \, x \, y^2 \, z^2 \\
& + 9334814448 \, x \, y \, z^3 + 1840347668 \, x \, z^4 + 1863123768 \, y^5 + 7394317956 \, y^4 \, z \\
& + 11730827430 \, y^3 \, z^2 + 9298993077 \, y^2 \, z^3 + 3683090262 \, y \, z^4 + 583096085 \, z^5 \\
& + 40735232 \, x^4 + 335315712 \, x^3 \, y + 264279040 \, x^3 \, z + 1001094624 \, x^2 \, y^2 \\
& + 1586279616 \, x^2 \, y \, z + 627864512 \, x^2 \, z^2 + 1294053408 \, x \, y^3 + 3088654128 \, x \, y^2 \, z \\
& + 2455672656 \, x \, y \, z^2 + 650349120 \, x \, z^3 + 614155608 \, y^4 + 1961261640 \, y^3 \, z \\
& + 2347343406 \, y^2 \, z^2 + 1247903124 \, y \, z^3 + 248630674 \, z^4 + 19960320 \, x^3 \\
& + 113535360 \, x^2 \, y + 90660480 \, x^2 \, z + 211146912 \, x \, y^2 + 338296896 \, x \, y \, z \\
& + 135430752 \, x \, z^2 + 128865168 \, y^3 + 310517064 \, y^2 \, z + 249298488 \, y \, z^2
\end{aligned}$$

$$\begin{aligned}
& + 66685560 \, z^3 + 5073408 \, x^2 + 18140544 \, x \, y + 14630400 \, x \, z + 16083360 \, y^2 \\
& + 25979616 \, y \, z + 10488672 \, z^2 + 608256 \, x + 1067904 \, y + 864000 \, z + 31104) / \\
& ((4 \, x + 6 \, y + 5 \, z + 6)^2 (4 \, x + 6 \, y + 5 \, z + 1)^2 (4 \, x + 6 \, y + 5 \, z) (4 \, x + 6 \, y \\
& + 5 \, z + 2) (4 \, x + 6 \, y + 5 \, z + 3) (4 \, x + 6 \, y + 5 \, z + 4) (3 \, y + 2 \, z \\
& + 2)^2 (3 \, y + 2 \, z + 3)^2)
\end{aligned}$$

> *VerifyWZForm*([f, g, h], [x, y, z]);

true

(11)

> *S := WZFormDecomp*([f, g, h], [x, y, z], Z);

$$S := \frac{1}{16 \left(x + \frac{3}{2} y + \frac{5}{4} z + \frac{1}{4} \right)^2}, \left[\left[\frac{1}{4 \, x + 6 \, y + 5 \, z} + \frac{1}{4 \, x + 6 \, y + 5 \, z + 1} \right. \right.$$

(12)

$$\begin{aligned}
& + \frac{1}{4 \, x + 6 \, y + 5 \, z + 2} + \frac{1}{4 \, x + 6 \, y + 5 \, z + 3}, \frac{1}{4 \, x + 6 \, y + 5 \, z} \\
& + \frac{1}{4 \, x + 6 \, y + 5 \, z + 1} + \frac{1}{4 \, x + 6 \, y + 5 \, z + 2} + \frac{1}{4 \, x + 6 \, y + 5 \, z + 3} \\
& + \frac{1}{4 \, x + 6 \, y + 5 \, z + 4} + \frac{1}{4 \, x + 6 \, y + 5 \, z + 5}, \frac{1}{4 \, x + 6 \, y + 5 \, z} \\
& + \frac{1}{4 \, x + 6 \, y + 5 \, z + 1} + \frac{1}{4 \, x + 6 \, y + 5 \, z + 2} + \frac{1}{4 \, x + 6 \, y + 5 \, z + 3} \\
& + \frac{1}{4 \, x + 6 \, y + 5 \, z + 4} \Big], \left[0, \frac{1}{(3 \, y + 2 \, z + 2)^2} + \frac{1}{(3 \, y + 2 \, z + 3)^2} \right. \\
& + \frac{1}{(3 \, y + 2 \, z + 4)^2}, \frac{1}{(3 \, y + 2 \, z + 2)^2} + \frac{1}{(3 \, y + 2 \, z + 3)^2} \Big], \left[4 \, x + 6 \, y + 5 \, z \right. \\
& \left. = \frac{1}{Z}, 3 \, y + 2 \, z = \frac{1}{(Z + 2)^2} \right]
\end{aligned}$$

> *TransUniWZForms*(S[2], [x, y, z], Z);

$$\text{table} \left(\left[[4, 6, 5] = \frac{1}{Z}, [0, 3, 2] = \frac{1}{(Z + 2)^2} \right] \right)$$

(13)

>