Rank-76051 over GF(32)

January 15, 2021

The equation

The equation of the surface is:

$$X_0^2 X_1 + X_1^2 X_2 + X_1 X_2^2 + X_0 X_3^2 + X_0 X_1 X_2 = 0$$

(0, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 0, 0)The point rank of the equation over GF(32) is 1109427237

General information

Number of lines	5
Number of points	1121
Number of singular points	0
Number of Eckardt points	1
Number of double points	2
Number of single points	158
Number of points off lines	960
Number of Hesse planes	0
Number of axes	0
Type of points on lines	33^{5}
Type of lines on points	$3, 2^2, 1^{158}, 0^{960}$

Singular Points

The surface has 0 singular points:

The 5 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \mathbf{Pl}(0, 0, 1, 0, 0, 0)_2$$

$$\ell_1 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082400} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082400} = \mathbf{Pl}(0, 0, 0, 1, 0, 0)_{65}$$

$$\ell_{2} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \mathbf{Pl}(0, 1, 0, 0, 0, 0)_{1}$$

$$\ell_{3} = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082433} = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082433} = \mathbf{Pl}(0, 1, 0, 1, 0, 0)_{97}$$

$$\ell_{4} = \begin{bmatrix} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{35906} = \begin{bmatrix} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{35906} = \mathbf{Pl}(0, 1, 1, 1, 1, 1)_{70594}$$

Rank of lines: (1024, 1082400, 1083424, 1082433, 35906) Rank of points on Klein quadric: (2, 65, 1, 97, 70594)

Eckardt Points

The surface has 1 Eckardt points: $0: P_3 = \mathbf{P}(0, 0, 0, 1) = \mathbf{P}(0, 0, 0, 1).$

Double Points

The surface has 2 Double points: The double points on the surface are:

$$P_2 = (0,0,1,0) = \ell_0 \cap \ell_2$$

$$P_{2082} = (0,0,1,1) = \ell_2 \cap \ell_4$$

Single Points

The surface has 158 single points: The single points on the surface are:

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0: P_0 = (1,0,0,0) lies on line \ell_0
                                                                      22: P_{56} = (21, 0, 1, 0) lies on line \ell_0
1: P_1 = (0, 1, 0, 0) lies on line \ell_1
                                                                      23: P_{57} = (22, 0, 1, 0) lies on line \ell_0
2: P_{36} = (1,0,1,0) lies on line \ell_0
                                                                      24: P_{58} = (23, 0, 1, 0) lies on line \ell_0
3: P_{37} = (2, 0, 1, 0) lies on line \ell_0
                                                                      25: P_{59} = (24, 0, 1, 0) lies on line \ell_0
4: P_{38} = (3,0,1,0) lies on line \ell_0
                                                                      26: P_{60} = (25, 0, 1, 0) lies on line \ell_0
5: P_{39} = (4, 0, 1, 0) lies on line \ell_0
                                                                      27: P_{61} = (26, 0, 1, 0) lies on line \ell_0
6: P_{40} = (5, 0, 1, 0) lies on line \ell_0
                                                                      28: P_{62} = (27, 0, 1, 0) lies on line \ell_0
7: P_{41} = (6,0,1,0) lies on line \ell_0
                                                                      29: P_{63} = (28, 0, 1, 0) lies on line \ell_0
8: P_{42} = (7, 0, 1, 0) lies on line \ell_0
                                                                      30: P_{64} = (29, 0, 1, 0) lies on line \ell_0
9: P_{43} = (8,0,1,0) lies on line \ell_0
                                                                      31: P_{65} = (30, 0, 1, 0) lies on line \ell_0
10: P_{44} = (9,0,1,0) lies on line \ell_0
                                                                      32: P_{66} = (31, 0, 1, 0) lies on line \ell_0
11: P_{45} = (10, 0, 1, 0) lies on line \ell_0
                                                                      33: P_{67} = (0, 1, 1, 0) lies on line \ell_3
12: P_{46} = (11, 0, 1, 0) lies on line \ell_0
                                                                      34: P_{68} = (1, 1, 1, 0) lies on line \ell_4
13: P_{47} = (12, 0, 1, 0) lies on line \ell_0
                                                                      35: P_{1090} = (0, 1, 0, 1) lies on line \ell_1
14: P_{48} = (13, 0, 1, 0) lies on line \ell_0
                                                                      36: P_{1091} = (1, 1, 0, 1) lies on line \ell_4
15: P_{49} = (14, 0, 1, 0) lies on line \ell_0
                                                                      37: P_{1122} = (0, 2, 0, 1) lies on line \ell_1
16: P_{50} = (15, 0, 1, 0) lies on line \ell_0
                                                                      38: P_{1154} = (0, 3, 0, 1) lies on line \ell_1
17: P_{51} = (16, 0, 1, 0) lies on line \ell_0
                                                                      39: P_{1186} = (0, 4, 0, 1) lies on line \ell_1
18: P_{52} = (17, 0, 1, 0) lies on line \ell_0
                                                                      40: P_{1218} = (0, 5, 0, 1) lies on line \ell_1
19 : P_{53} = (18,0,1,0) lies on line \ell_0
                                                                      41: P_{1250} = (0, 6, 0, 1) lies on line \ell_1
20: P_{54} = (19, 0, 1, 0) lies on line \ell_0
                                                                      42: P_{1282} = (0, 7, 0, 1) lies on line \ell_1
21: P_{55} = (20, 0, 1, 0) lies on line \ell_0
                                                                      43: P_{1314} = (0, 8, 0, 1) lies on line \ell_1
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44: P_{1346} = (0, 9, 0, 1) lies on line \ell_1
                                                                     98: P_{13345} = (0, 0, 12, 1) lies on line \ell_2
                                                                     99: P_{13729} = (0, 12, 12, 1) lies on line \ell_3
45: P_{1378} = (0, 10, 0, 1) lies on line \ell_1
46: P_{1410} = (0, 11, 0, 1) lies on line \ell_1
                                                                     100: P_{13774} = (13, 13, 12, 1) lies on line \ell_4
47: P_{1442} = (0, 12, 0, 1) lies on line \ell_1
                                                                     101: P_{14369} = (0, 0, 13, 1) lies on line \ell_2
48: P_{1474} = (0, 13, 0, 1) lies on line \ell_1
                                                                     102: P_{14765} = (12, 12, 13, 1) lies on line \ell_4
                                                                     103: P_{14785} = (0, 13, 13, 1) lies on line \ell_3
49: P_{1506} = (0, 14, 0, 1) lies on line \ell_1
50: P_{1538} = (0, 15, 0, 1) lies on line \ell_1
                                                                     104: P_{15393} = (0, 0, 14, 1) lies on line \ell_2
51: P_{1570} = (0, 16, 0, 1) lies on line \ell_1
                                                                     105: P_{15841} = (0, 14, 14, 1) lies on line \ell_3
52: P_{1602} = (0, 17, 0, 1) lies on line \ell_1
                                                                     106: P_{15888} = (15, 15, 14, 1) lies on line \ell_4
53: P_{1634} = (0, 18, 0, 1) lies on line \ell_1
                                                                     107: P_{16417} = (0, 0, 15, 1) lies on line \ell_2
54: P_{1666} = (0, 19, 0, 1) lies on line \ell_1
                                                                     108: P_{16879} = (14, 14, 15, 1) lies on line \ell_4
55: P_{1698} = (0, 20, 0, 1) lies on line \ell_1
                                                                     109: P_{16897} = (0, 15, 15, 1) lies on line \ell_3
56: P_{1730} = (0, 21, 0, 1) lies on line \ell_1
                                                                     110: P_{17441} = (0, 0, 16, 1) lies on line \ell_2
57: P_{1762} = (0, 22, 0, 1) lies on line \ell_1
                                                                     111: P_{17953} = (0, 16, 16, 1) lies on line \ell_3
58: P_{1794} = (0, 23, 0, 1) lies on line \ell_1
                                                                     112: P_{18002} = (17, 17, 16, 1) lies on line \ell_4
59: P_{1826} = (0, 24, 0, 1) lies on line \ell_1
                                                                     113: P_{18465} = (0, 0, 17, 1) lies on line \ell_2
60: P_{1858} = (0, 25, 0, 1) lies on line \ell_1
                                                                     114: P_{18993} = (16, 16, 17, 1) lies on line \ell_4
61: P_{1890} = (0, 26, 0, 1) lies on line \ell_1
                                                                     115: P_{19009} = (0, 17, 17, 1) lies on line \ell_3
                                                                     116: P_{19489} = (0, 0, 18, 1) lies on line \ell_2
62: P_{1922} = (0, 27, 0, 1) lies on line \ell_1
63: P_{1954} = (0, 28, 0, 1) lies on line \ell_1
                                                                     117: P_{20065} = (0, 18, 18, 1) lies on line \ell_3
64: P_{1986} = (0, 29, 0, 1) lies on line \ell_1
                                                                     118: P_{20116} = (19, 19, 18, 1) lies on line \ell_4
65: P_{2018} = (0, 30, 0, 1) lies on line \ell_1
                                                                     119: P_{20513} = (0, 0, 19, 1) lies on line \ell_2
66: P_{2050} = (0, 31, 0, 1) lies on line \ell_1
                                                                     120: P_{21107} = (18, 18, 19, 1) lies on line \ell_4
                                                                     121 : P_{21121} = (0, 19, 19, 1) lies on line \ell_3
67: P_{2114} = (0, 1, 1, 1) lies on line \ell_3
68: P_{3105} = (0,0,2,1) lies on line \ell_2
                                                                     122: P_{21537} = (0, 0, 20, 1) lies on line \ell_2
69: P_{3169} = (0, 2, 2, 1) lies on line \ell_3
                                                                     123: P_{22177} = (0, 20, 20, 1) lies on line \ell_3
70: P_{3204} = (3, 3, 2, 1) lies on line \ell_4
                                                                     124: P_{22230} = (21, 21, 20, 1) lies on line \ell_4
71: P_{4129} = (0,0,3,1) lies on line \ell_2
                                                                     125: P_{22561} = (0, 0, 21, 1) lies on line \ell_2
72: P_{4195} = (2, 2, 3, 1) lies on line \ell_4
                                                                     126: P_{23221} = (20, 20, 21, 1) lies on line \ell_4
73: P_{4225} = (0, 3, 3, 1) lies on line \ell_3
                                                                     127: P_{23233} = (0, 21, 21, 1) lies on line \ell_3
74: P_{5153} = (0, 0, 4, 1) lies on line \ell_2
                                                                     128: P_{23585} = (0, 0, 22, 1) lies on line \ell_2
75: P_{5281} = (0, 4, 4, 1) lies on line \ell_3
                                                                     129: P_{24289} = (0, 22, 22, 1) lies on line \ell_3
76: P_{5318} = (5, 5, 4, 1) lies on line \ell_4
                                                                     130: P_{24344} = (23, 23, 22, 1) lies on line \ell_4
77: P_{6177} = (0, 0, 5, 1) lies on line \ell_2
                                                                     131: P_{24609} = (0, 0, 23, 1) lies on line \ell_2
78: P_{6309} = (4, 4, 5, 1) lies on line \ell_4
                                                                     132: P_{25335} = (22, 22, 23, 1) lies on line \ell_4
                                                                     133: P_{25345} = (0, 23, 23, 1) lies on line \ell_3
79: P_{6337} = (0, 5, 5, 1) lies on line \ell_3
80: P_{7201} = (0,0,6,1) lies on line \ell_2
                                                                     134: P_{25633} = (0, 0, 24, 1) lies on line \ell_2
81: P_{7393} = (0, 6, 6, 1) lies on line \ell_3
                                                                     135 : P_{26401} = (0, 24, 24, 1) lies on line \ell_3
82: P_{7432} = (7,7,6,1) lies on line \ell_4
                                                                     136: P_{26458} = (25, 25, 24, 1) lies on line \ell_4
                                                                     137 : P_{26657} = (0, 0, 25, 1) lies on line \ell_2
83: P_{8225} = (0, 0, 7, 1) lies on line \ell_2
84: P_{8423} = (6, 6, 7, 1) lies on line \ell_4
                                                                     138: P_{27449} = (24, 24, 25, 1) lies on line \ell_4
85: P_{8449} = (0, 7, 7, 1) lies on line \ell_3
                                                                     139: P_{27457} = (0, 25, 25, 1) lies on line \ell_3
86: P_{9249} = (0,0,8,1) lies on line \ell_2
                                                                     140: P_{27681} = (0, 0, 26, 1) lies on line \ell_2
87: P_{9505} = (0, 8, 8, 1) lies on line \ell_3
                                                                     141: P_{28513} = (0, 26, 26, 1) lies on line \ell_3
88: P_{9546} = (9, 9, 8, 1) lies on line \ell_4
                                                                     142: P_{28572} = (27, 27, 26, 1) lies on line \ell_4
89: P_{10273} = (0, 0, 9, 1) lies on line \ell_2
                                                                     143: P_{28705} = (0, 0, 27, 1) lies on line \ell_2
90: P_{10537} = (8, 8, 9, 1) lies on line \ell_4
                                                                     144: P_{29563} = (26, 26, 27, 1) lies on line \ell_4
91: P_{10561} = (0, 9, 9, 1) lies on line \ell_3
                                                                     145: P_{29569} = (0, 27, 27, 1) lies on line \ell_3
92 : P_{11297} = (0, 0, 10, 1) lies on line \ell_2
                                                                     146: P_{29729} = (0, 0, 28, 1) lies on line \ell_2
93: P_{11617} = (0, 10, 10, 1) lies on line \ell_3
                                                                     147: P_{30625} = (0, 28, 28, 1) lies on line \ell_3
                                                                     148: P_{30686} = (29, 29, 28, 1) lies on line \ell_4
94: P_{11660} = (11, 11, 10, 1) lies on line \ell_4
95: P_{12321} = (0, 0, 11, 1) lies on line \ell_2
                                                                     149: P_{30753} = (0, 0, 29, 1) lies on line \ell_2
96 : P_{12651} = (10, 10, 11, 1) lies on line \ell_4
                                                                     150 : P_{31677} = (28, 28, 29, 1) lies on line \ell_4
97: P_{12673} = (0, 11, 11, 1) lies on line \ell_3
                                                                     151: P_{31681} = (0, 29, 29, 1) lies on line \ell_3
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\begin{array}{lll} 152: \ P_{31777} = (0,0,30,1) \ \text{lies on line} \ \ell_2 \\ 153: \ P_{32737} = (0,30,30,1) \ \text{lies on line} \ \ell_3 \\ 154: \ P_{32800} = (31,31,30,1) \ \text{lies on line} \ \ell_4 \\ 155: \ P_{32801} = (0,0,31,1) \ \text{lies on line} \ \ell_2 \end{array}
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The single points on the surface are:

Points on surface but on no line

The surface has 960 points not on any line: The points on the surface but not on lines are:

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0: P_{139} = (8, 3, 1, 0)
                                                                  40: P_{1449} = (7, 12, 0, 1)
1: P_{140} = (9, 3, 1, 0)
                                                                  41: P_{1489} = (15, 13, 0, 1)
2: P_{205} = (10, 5, 1, 0)
                                                                  42: P_{1512} = (6, 14, 0, 1)
3: P_{206} = (11, 5, 1, 0)
                                                                  43: P_{1551} = (13, 15, 0, 1)
4: P_{261} = (2,7,1,0)
                                                                  44: P_{1581} = (11, 16, 0, 1)
5: P_{262} = (3,7,1,0)
                                                                  45: P_{1626} = (24, 17, 0, 1)
6: P_{311} = (20, 8, 1, 0)
                                                                  46: P_{1636} = (2, 18, 0, 1)
7: P_{312} = (21, 8, 1, 0)
                                                                  47: P_{1695} = (29, 19, 0, 1)
8: P_{383} = (28, 10, 1, 0)
                                                                  48: P_{1728} = (30, 20, 0, 1)
                                                                  49: P_{1756} = (26, 21, 0, 1)
9: P_{384} = (29, 10, 1, 0)
10: P_{449} = (30, 12, 1, 0)
                                                                  50: P_{1770} = (8, 22, 0, 1)
11: P_{450} = (31, 12, 1, 0)
                                                                  51: P_{1799} = (5, 23, 0, 1)
12: P_{505} = (22, 14, 1, 0)
                                                                  52: P_{1843} = (17, 24, 0, 1)
13: P_{506} = (23, 14, 1, 0)
                                                                  53: P_{1868} = (10, 25, 0, 1)
14: P_{593} = (14, 17, 1, 0)
                                                                  54: P_{1911} = (21, 26, 0, 1)
15: P_{594} = (15, 17, 1, 0)
                                                                  55: P_{1953} = (31, 27, 0, 1)
16: P_{649} = (6, 19, 1, 0)
                                                                  56: P_{1957} = (3, 28, 0, 1)
17: P_{650} = (7, 19, 1, 0)
                                                                  57: P_{2005} = (19, 29, 0, 1)
18: P_{711} = (4, 21, 1, 0)
                                                                  58: P_{2038} = (20, 30, 0, 1)
19: P_{712} = (5, 21, 1, 0)
                                                                  59: P_{2077} = (27, 31, 0, 1)
20: P_{783} = (12, 23, 1, 0)
                                                                  60: P_{2152} = (7, 2, 1, 1)
21: P_{784} = (13, 23, 1, 0)
                                                                  61: P_{2165} = (20, 2, 1, 1)
22: P_{829} = (26, 24, 1, 0)
                                                                  62: P_{2187} = (10, 3, 1, 1)
23: P_{830} = (27, 24, 1, 0)
                                                                  63: P_{2200} = (23, 3, 1, 1)
                                                                  64: P_{2230} = (21, 4, 1, 1)
24: P_{885} = (18, 26, 1, 0)
25: P_{886} = (19, 26, 1, 0)
                                                                  65: P_{2238} = (29, 4, 1, 1)
26: P_{947} = (16, 28, 1, 0)
                                                                  66: P_{2255} = (14, 5, 1, 1)
27: P_{948} = (17, 28, 1, 0)
                                                                  67: P_{2265} = (24, 5, 1, 1)
28: P_{1019} = (24, 30, 1, 0)
                                                                  68: P_{2278} = (5, 6, 1, 1)
29: P_{1020} = (25, 30, 1, 0)
                                                                  69: P_{2283} = (10, 6, 1, 1)
30: P_{1140} = (18, 2, 0, 1)
                                                                  70: P_{2343} = (6, 8, 1, 1)
31: P_{1182} = (28, 3, 0, 1)
                                                                  71: P_{2354} = (17, 8, 1, 1)
32: P_{1195} = (9, 4, 0, 1)
                                                                  72: P_{2413} = (12, 10, 1, 1)
33: P_{1241} = (23, 5, 0, 1)
                                                                  73: P_{2421} = (20, 10, 1, 1)
34: P_{1264} = (14, 6, 0, 1)
                                                                  74: P_{2484} = (19, 12, 1, 1)
35: P_{1294} = (12, 7, 0, 1)
                                                                  75: P_{2486} = (21, 12, 1, 1)
36: P_{1336} = (22, 8, 0, 1)
                                                                  76: P_{2520} = (23, 13, 1, 1)
37: P_{1350} = (4, 9, 0, 1)
                                                                  77: P_{2522} = (25, 13, 1, 1)
38: P_{1403} = (25, 10, 0, 1)
                                                                  78: P_{2555} = (26, 14, 1, 1)
39: P_{1426} = (16, 11, 0, 1)
                                                                  79: P_{2558} = (29, 14, 1, 1)
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80: P_{2615} = (22, 16, 1, 1)
                                                                 134: P_{4063} = (30, 29, 2, 1)
81: P_{2621} = (28, 16, 1, 1)
                                                                 135: P_{4110} = (13, 31, 2, 1)
                                                                 136: P_{4117} = (20, 31, 2, 1)
82: P_{2632} = (7, 17, 1, 1)
                                                                 137: P_{4212} = (19, 2, 3, 1)
83: P_{2655} = (30, 17, 1, 1)
84: P_{2694} = (5, 19, 1, 1)
                                                                 138: P_{4256} = (31, 3, 3, 1)
85: P_{2714} = (25, 19, 1, 1)
                                                                 139: P_{4293} = (4, 5, 3, 1)
86: P_{2735} = (14, 20, 1, 1)
                                                                 140: P_{4305} = (16, 5, 3, 1)
87: P_{2738} = (17, 20, 1, 1)
                                                                 141: P_{4338} = (17, 6, 3, 1)
88: P_{2804} = (19, 22, 1, 1)
                                                                 142: P_{4349} = (28, 6, 3, 1)
89: P_{2811} = (26, 22, 1, 1)
                                                                 143: P_{4397} = (12, 8, 3, 1)
90: P_{2884} = (3, 25, 1, 1)
                                                                 144: P_{4410} = (25, 8, 3, 1)
91: P_{2889} = (8, 25, 1, 1)
                                                                 145: P_{4436} = (19, 9, 3, 1)
92: P_{2921} = (8, 26, 1, 1)
                                                                 146: P_{4437} = (20, 9, 3, 1)
93: P_{2941} = (28, 26, 1, 1)
                                                                 147: P_{4450} = (1, 10, 3, 1)
                                                                 148: P_{4476} = (27, 10, 3, 1)
94: P_{2951} = (6, 27, 1, 1)
95: P_{2969} = (24, 27, 1, 1)
                                                                 149: P_{4593} = (16, 14, 3, 1)
                                                                 150: P_{4598} = (21, 14, 3, 1)
96: P_{3021} = (12, 29, 1, 1)
                                                                 151: P_{4630} = (21, 15, 3, 1)
97: P_{3039} = (30, 29, 1, 1)
                                                                 152: P_{4636} = (27, 15, 3, 1)
98: P_{3044} = (3, 30, 1, 1)
99: P_{3063} = (22, 30, 1, 1)
                                                                 153: P_{4658} = (17, 16, 3, 1)
100: P_{3158} = (21, 1, 2, 1)
                                                                 154: P_{4666} = (25, 16, 3, 1)
101: P_{3159} = (22, 1, 2, 1)
                                                                 155: P_{4677} = (4, 17, 3, 1)
102: P_{3185} = (16, 2, 2, 1)
                                                                 156: P_{4704} = (31, 17, 3, 1)
103: P_{3230} = (29, 3, 2, 1)
                                                                 157: P_{4717} = (12, 18, 3, 1)
104: P_{3249} = (16, 4, 2, 1)
                                                                 158: P_{4718} = (13, 18, 3, 1)
105: P_{3260} = (27, 4, 2, 1)
                                                                 159: P_{4770} = (1, 20, 3, 1)
106: P_{3269} = (4, 5, 2, 1)
                                                                 160: P_{4797} = (28, 20, 3, 1)
107: P_{3282} = (17, 5, 2, 1)
                                                                 161: P_{4814} = (13, 21, 3, 1)
108: P_{3302} = (5, 6, 2, 1)
                                                                 162: P_{4821} = (20, 21, 3, 1)
109: P_{3306} = (9, 6, 2, 1)
                                                                 163: P_{5027} = (2, 28, 3, 1)
110: P_{3461} = (4, 11, 2, 1)
                                                                 164: P_{5210} = (25, 1, 4, 1)
111: P_{3479} = (22, 11, 2, 1)
                                                                 165: P_{5213} = (28, 1, 4, 1)
112: P_{3523} = (2, 13, 2, 1)
                                                                 166: P_{5224} = (7, 2, 4, 1)
                                                                 167: P_{5234} = (17, 2, 4, 1)
113: P_{3536} = (15, 13, 2, 1)
                                                                 168: P_{5260} = (11, 3, 4, 1)
114: P_{3587} = (2, 15, 2, 1)
                                                                 169: P_{5268} = (19, 3, 4, 1)
115: P_{3598} = (13, 15, 2, 1)
116: P_{3634} = (17, 16, 2, 1)
                                                                 170: P_{5294} = (13, 4, 4, 1)
117: P_{3641} = (24, 16, 2, 1)
                                                                 171: P_{5335} = (22, 5, 4, 1)
118: P_{3684} = (3, 18, 2, 1)
                                                                 172: P_{5397} = (20, 7, 4, 1)
119: P_{3789} = (12, 21, 2, 1)
                                                                 173: P_{5405} = (28, 7, 4, 1)
120: P_{3797} = (20, 21, 2, 1)
                                                                 174: P_{5446} = (5, 9, 4, 1)
121: P_{3815} = (6, 22, 2, 1)
                                                                 175: P_{5576} = (7, 13, 4, 1)
122: P_{3821} = (12, 22, 2, 1)
                                                                 176: P_{5581} = (12, 13, 4, 1)
123: P_{3867} = (26, 23, 2, 1)
                                                                 177: P_{5649} = (16, 15, 4, 1)
124: P_{3870} = (29, 23, 2, 1)
                                                                 178: P_{5658} = (25, 15, 4, 1)
                                                                 179: P_{5667} = (2, 16, 4, 1)
125: P_{3879} = (6, 24, 2, 1)
126: P_{3894} = (21, 24, 2, 1)
                                                                 180: P_{5678} = (13, 16, 4, 1)
127: P_{3946} = (9, 26, 2, 1)
                                                                 181: P_{5709} = (12, 17, 4, 1)
128: P_{3967} = (30, 26, 2, 1)
                                                                 182: P_{5713} = (16, 17, 4, 1)
129: P_{3974} = (5, 27, 2, 1)
                                                                 183: P_{5756} = (27, 18, 4, 1)
130: P_{3993} = (24, 27, 2, 1)
                                                                 184: P_{5758} = (29, 18, 4, 1)
131: P_{4027} = (26, 28, 2, 1)
                                                                 185: P_{5804} = (11, 20, 4, 1)
132: P_{4028} = (27, 28, 2, 1)
                                                                 186: P_{5810} = (17, 20, 4, 1)
133: P_{4048} = (15, 29, 2, 1)
                                                                 187: P_{5876} = (19, 22, 4, 1)
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188: P_{5888} = (31, 22, 4, 1)
                                                                 242: P_{7656} = (7, 14, 6, 1)
189: P_{5891} = (2, 23, 4, 1)
                                                                 243: P_{7686} = (5, 15, 6, 1)
                                                                 244: P_{7695} = (14, 15, 6, 1)
190: P_{5892} = (3, 23, 4, 1)
                                                                 245: P_{7747} = (2, 17, 6, 1)
191: P_{5924} = (3, 24, 4, 1)
192: P_{5943} = (22, 24, 4, 1)
                                                                 246: P_{7773} = (28, 17, 6, 1)
193: P_{5973} = (20, 25, 4, 1)
                                                                 247: P_{7856} = (15, 20, 6, 1)
194: P_{5979} = (26, 25, 4, 1)
                                                                 248: P_{7864} = (23, 20, 6, 1)
195: P_{6021} = (4, 27, 4, 1)
                                                                 249: P_{7906} = (1, 22, 6, 1)
196: P_{6048} = (31, 27, 4, 1)
                                                                 250: P_{7920} = (15, 22, 6, 1)
197: P_{6075} = (26, 28, 4, 1)
                                                                 251: P_{8006} = (5, 25, 6, 1)
198: P_{6078} = (29, 28, 4, 1)
                                                                 252: P_{8010} = (9, 25, 6, 1)
199: P_{6149} = (4, 31, 4, 1)
                                                                 253: P_{8046} = (13, 26, 6, 1)
200: P_{6172} = (27, 31, 4, 1)
                                                                 254: P_{8063} = (30, 26, 6, 1)
201: P_{6313} = (8, 4, 5, 1)
                                                                 255: P_{8074} = (9, 27, 6, 1)
                                                                 256: P_{8081} = (16, 27, 6, 1)
202: P_{6355} = (18, 5, 5, 1)
203: P_{6491} = (26, 9, 5, 1)
                                                                 257: P_{8194} = (1, 31, 6, 1)
                                                                 258: P_{8221} = (28, 31, 6, 1)
204: P_{6492} = (27, 9, 5, 1)
                                                                 259: P_{8284} = (27, 1, 7, 1)
205: P_{6503} = (6, 10, 5, 1)
                                                                 260: P_{8286} = (29, 1, 7, 1)
206: P_{6523} = (26, 10, 5, 1)
                                                                 261: P_{8396} = (11, 5, 7, 1)
207: P_{6537} = (8, 11, 5, 1)
208: P_{6558} = (29, 11, 5, 1)
                                                                 262: P_{8412} = (27, 5, 7, 1)
209: P_{6577} = (16, 12, 5, 1)
                                                                 263: P_{8432} = (15, 6, 7, 1)
210: P_{6579} = (18, 12, 5, 1)
                                                                 264: P_{8460} = (11, 7, 7, 1)
211: P_{6599} = (6, 13, 5, 1)
                                                                 265: P_{8493} = (12, 8, 7, 1)
212: P_{6605} = (12, 13, 5, 1)
                                                                 266: P_{8510} = (29, 8, 7, 1)
213: P_{6626} = (1, 14, 5, 1)
                                                                 267: P_{8557} = (12, 10, 7, 1)
214: P_{6627} = (2, 14, 5, 1)
                                                                 268: P_{8563} = (18, 10, 7, 1)
215: P_{6734} = (13, 17, 5, 1)
                                                                 269: P_{8615} = (6, 12, 7, 1)
216: P_{6737} = (16, 17, 5, 1)
                                                                 270: P_{8709} = (4, 15, 7, 1)
                                                                 271: P_{8719} = (14, 15, 7, 1)
217: P_{6829} = (12, 20, 5, 1)
218: P_{6840} = (23, 20, 5, 1)
                                                                 272: P_{8759} = (22, 16, 7, 1)
219: P_{6917} = (4, 23, 5, 1)
                                                                 273: P_{8763} = (26, 16, 7, 1)
220: P_{7100} = (27, 28, 5, 1)
                                                                 274: P_{8802} = (1, 18, 7, 1)
221: P_{7102} = (29, 28, 5, 1)
                                                                 275: P_{8805} = (4, 18, 7, 1)
222: P_{7106} = (1, 29, 5, 1)
                                                                 276: P_{8994} = (1, 24, 7, 1)
                                                                 277: P_{9016} = (23, 24, 7, 1)
223: P_{7128} = (23, 29, 5, 1)
224: P_{7150} = (13, 30, 5, 1)
                                                                 278: P_{9048} = (23, 25, 7, 1)
225: P_{7165} = (28, 30, 5, 1)
                                                                 279: P_{9051} = (26, 25, 7, 1)
226: P_{7171} = (2, 31, 5, 1)
                                                                 280: P_{9071} = (14, 26, 7, 1)
227: P_{7197} = (28, 31, 5, 1)
                                                                 281: P_{9085} = (28, 26, 7, 1)
228: P_{7249} = (16, 1, 6, 1)
                                                                 282: P_{9139} = (18, 28, 7, 1)
229: P_{7256} = (23, 1, 6, 1)
                                                                 283: P_{9143} = (22, 28, 7, 1)
230: P_{7279} = (14, 2, 6, 1)
                                                                 284: P_{9200} = (15, 30, 7, 1)
231: P_{7291} = (26, 2, 6, 1)
                                                                 285: P_{9213} = (28, 30, 7, 1)
232: P_{7401} = (8, 6, 6, 1)
                                                                 286: P_{9355} = (10, 3, 8, 1)
233: P_{7438} = (13, 7, 6, 1)
                                                                 287: P_{9375} = (30, 3, 8, 1)
234: P_{7459} = (2, 8, 6, 1)
                                                                 288: P_{9399} = (22, 4, 8, 1)
235: P_{7475} = (18, 8, 6, 1)
                                                                 289: P_{9400} = (23, 4, 8, 1)
236:\,P_{7561}=(8,11,6,1)
                                                                 290: P_{9449} = (8, 6, 8, 1)
237: P_{7583} = (30, 11, 6, 1)
                                                                 291: P_{9455} = (14, 6, 8, 1)
238: P_{7611} = (26, 12, 6, 1)
                                                                 292: P_{9535} = (30, 8, 8, 1)
239: P_{7612} = (27, 12, 6, 1)
                                                                 293: P_{9542} = (5, 9, 8, 1)
240: P_{7635} = (18, 13, 6, 1)
                                                                 294: P_{9570} = (1, 10, 8, 1)
241: P_{7644} = (27, 13, 6, 1)
                                                                 295: P_{9585} = (16, 10, 8, 1)
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350: P_{11947} = (10, 20, 10, 1)
296: P_{9703} = (6, 14, 8, 1)
                                                                351: P_{11967} = (30, 20, 10, 1)
297: P_{9705} = (8, 14, 8, 1)
298: P_{9748} = (19, 15, 8, 1)
                                                                352: P_{12078} = (13, 24, 10, 1)
299: P_{9751} = (22, 15, 8, 1)
                                                                353: P_{12087} = (22, 24, 10, 1)
300: P_{9766} = (5, 16, 8, 1)
                                                                354: P_{12108} = (11, 25, 10, 1)
301: P_{9767} = (6, 16, 8, 1)
                                                                355: P_{12194} = (1, 28, 10, 1)
302: P_{9922} = (1, 21, 8, 1)
                                                                356: P_{12201} = (8, 28, 10, 1)
303: P_{9940} = (19, 21, 8, 1)
                                                                357: P_{12267} = (10, 30, 10, 1)
304: P_{9962} = (9, 22, 8, 1)
                                                                358: P_{12277} = (20, 30, 10, 1)
305: P_{10001} = (16, 23, 8, 1)
                                                                359: P_{12297} = (8, 31, 10, 1)
306: P_{10014} = (29, 23, 8, 1)
                                                                360: P_{12314} = (25, 31, 10, 1)
307: P_{10031} = (14, 24, 8, 1)
                                                                361: P_{12537} = (24, 6, 11, 1)
308: P_{10040} = (23, 24, 8, 1)
                                                                362: P_{12542} = (29, 6, 11, 1)
                                                                363: P_{12556} = (11, 7, 11, 1)
309: P_{10123} = (10, 27, 8, 1)
310: P_{10142} = (29, 27, 8, 1)
                                                                364: P_{12557} = (12, 7, 11, 1)
311: P_{10409} = (8, 4, 9, 1)
                                                                365: P_{12665} = (24, 10, 11, 1)
312: P_{10444} = (11, 5, 9, 1)
                                                                366: P_{12700} = (27, 11, 11, 1)
313: P_{10454} = (21, 5, 9, 1)
                                                                367: P_{12712} = (7, 12, 11, 1)
                                                                368: P_{12716} = (11, 12, 11, 1)
314: P_{10483} = (18, 6, 9, 1)
315: P_{10486} = (21, 6, 9, 1)
                                                                369: P_{12789} = (20, 14, 11, 1)
316: P_{10552} = (23, 8, 9, 1)
                                                                370: P_{12794} = (25, 14, 11, 1)
317: P_{10574} = (13, 9, 9, 1)
                                                                371: P_{12843} = (10, 16, 11, 1)
318: P_{10599} = (6, 10, 9, 1)
                                                                372: P_{12880} = (15, 17, 11, 1)
319: P_{10615} = (22, 10, 9, 1)
                                                                373: P_{12893} = (28, 17, 11, 1)
320: P_{10723} = (2, 14, 9, 1)
                                                                374: P_{12917} = (20, 18, 11, 1)
321: P_{10734} = (13, 14, 9, 1)
                                                                375: P_{12926} = (29, 18, 11, 1)
322: P_{10826} = (9, 17, 9, 1)
                                                                376: P_{12944} = (15, 19, 11, 1)
323: P_{10841} = (24, 17, 9, 1)
                                                                377: P_{12954} = (25, 19, 11, 1)
324: P_{10947} = (2, 21, 9, 1)
                                                                378: P_{12970} = (9, 20, 11, 1)
325: P_{10962} = (17, 21, 9, 1)
                                                                379: P_{12989} = (28, 20, 11, 1)
326: P_{11050} = (9, 24, 9, 1)
                                                                380: P_{13064} = (7, 23, 11, 1)
327: P_{11058} = (17, 24, 9, 1)
                                                                381: P_{13066} = (9, 23, 11, 1)
328: P_{11093} = (20, 25, 9, 1)
                                                                382: P_{13221} = (4, 28, 11, 1)
329: P_{11096} = (23, 25, 9, 1)
                                                                383: P_{13229} = (12, 28, 11, 1)
330: P_{11187} = (18, 28, 9, 1)
                                                                384: P_{13285} = (4, 30, 11, 1)
331: P_{11193} = (24, 28, 9, 1)
                                                                385: P_{13308} = (27, 30, 11, 1)
332: P_{11244} = (11, 30, 9, 1)
                                                                386: P_{13412} = (3, 2, 12, 1)
333: P_{11255} = (22, 30, 9, 1)
                                                                387: P_{13438} = (29, 2, 12, 1)
334: P_{11271} = (6, 31, 9, 1)
                                                                388: P_{13452} = (11, 3, 12, 1)
335: P_{11285} = (20, 31, 9, 1)
                                                                389: P_{13468} = (27, 3, 12, 1)
336: P_{11375} = (14, 2, 10, 1)
                                                                390: P_{13582} = (13, 7, 12, 1)
337: P_{11383} = (22, 2, 10, 1)
                                                                391: P_{13603} = (2, 8, 12, 1)
338: P_{11471} = (14, 5, 10, 1)
                                                                392: P_{13625} = (24, 8, 12, 1)
339: P_{11476} = (19, 5, 10, 1)
                                                                393: P_{13649} = (16, 9, 12, 1)
340: P_{11545} = (24, 7, 10, 1)
                                                                394: P_{13657} = (24, 9, 12, 1)
341: P_{11551} = (30, 7, 10, 1)
                                                                395: P_{13740} = (11, 12, 12, 1)
342: P_{11636} = (19, 10, 10, 1)
                                                                396: P_{13775} = (14, 13, 12, 1)
343: P_{11666} = (17, 11, 10, 1)
                                                                397: P_{13829} = (4, 15, 12, 1)
344: P_{11730} = (17, 13, 10, 1)
                                                                398: P_{13830} = (5, 15, 12, 1)
345: P_{11733} = (20, 13, 10, 1)
                                                                399: P_{13954} = (1, 19, 12, 1)
346: P_{11746} = (1, 14, 10, 1)
                                                                400: P_{13969} = (16, 19, 12, 1)
347: P_{11758} = (13, 14, 10, 1)
                                                                401: P_{14052} = (3, 22, 12, 1)
348: P_{11833} = (24, 16, 10, 1)
                                                                402: P_{14056} = (7, 22, 12, 1)
349: P_{11834} = (25, 16, 10, 1)
                                                                403: P_{14117} = (4, 24, 12, 1)
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404: P_{14138} = (25, 24, 12, 1)
                                                                458: P_{15885} = (12, 15, 14, 1)
405: P_{14146} = (1, 25, 12, 1)
                                                                459: P_{15945} = (8, 17, 14, 1)
406: P_{14152} = (7, 25, 12, 1)
                                                                460: P_{15967} = (30, 17, 14, 1)
407: P_{14179} = (2, 26, 12, 1)
                                                                461: P_{15975} = (6, 18, 14, 1)
408: P_{14204} = (27, 26, 12, 1)
                                                                462: P_{15979} = (10, 18, 14, 1)
409: P_{14310} = (5, 30, 12, 1)
                                                                463: P_{16015} = (14, 19, 14, 1)
410: P_{14334} = (29, 30, 12, 1)
                                                                464: P_{16030} = (29, 19, 14, 1)
411: P_{14351} = (14, 31, 12, 1)
                                                                465: P_{16072} = (7, 21, 14, 1)
412: P_{14362} = (25, 31, 12, 1)
                                                                466: P_{16084} = (19, 21, 14, 1)
413: P_{14421} = (20, 1, 13, 1)
                                                                467: P_{16130} = (1, 23, 14, 1)
414: P_{14425} = (24, 1, 13, 1)
                                                                468: P_{16139} = (10, 23, 14, 1)
415: P_{14436} = (3, 2, 13, 1)
                                                                469: P_{16269} = (12, 27, 14, 1)
416: P_{14461} = (28, 2, 13, 1)
                                                                470: P_{16286} = (29, 27, 14, 1)
417: P_{14506} = (9, 4, 13, 1)
                                                                471: P_{16335} = (14, 29, 14, 1)
418: P_{14510} = (13, 4, 13, 1)
                                                                472: P_{16340} = (19, 29, 14, 1)
419: P_{14570} = (9, 6, 13, 1)
                                                                473: P_{16354} = (1, 30, 14, 1)
420: P_{14571} = (10, 6, 13, 1)
                                                                474: P_{16380} = (27, 30, 14, 1)
421: P_{14609} = (16, 7, 13, 1)
                                                                475: P_{16679} = (6, 8, 15, 1)
422: P_{14610} = (17, 7, 13, 1)
                                                                476: P_{16704} = (31, 8, 15, 1)
423: P_{14661} = (4, 9, 13, 1)
                                                                477: P_{16727} = (22, 9, 15, 1)
424: P_{14670} = (13, 9, 13, 1)
                                                                478: P_{16734} = (29, 9, 15, 1)
425: P_{14725} = (4, 11, 13, 1)
                                                                479: P_{16824} = (23, 12, 15, 1)
426: P_{14746} = (25, 11, 13, 1)
                                                                480: P_{16832} = (31, 12, 15, 1)
427: P_{14759} = (6, 12, 13, 1)
                                                                481: P_{16847} = (14, 13, 15, 1)
428: P_{14787} = (2, 13, 13, 1)
                                                                482: P_{16872} = (7, 14, 15, 1)
429: P_{14861} = (12, 15, 13, 1)
                                                                483: P_{16899} = (2, 15, 15, 1)
430: P_{14907} = (26, 16, 13, 1)
                                                                484: P_{17027} = (2, 19, 15, 1)
431: P_{14909} = (28, 16, 13, 1)
                                                                485: P_{17041} = (16, 19, 15, 1)
432: P_{14923} = (10, 17, 13, 1)
                                                                486: P_{17064} = (7, 20, 15, 1)
                                                                487: P_{17079} = (22, 20, 15, 1)
433: P_{14944} = (31, 17, 13, 1)
434: P_{14965} = (20, 18, 13, 1)
                                                                488: P_{17104} = (15, 21, 15, 1)
435: P_{14972} = (27, 18, 13, 1)
                                                                489: P_{17115} = (26, 21, 15, 1)
436: P_{15014} = (5, 20, 13, 1)
                                                                490: P_{17169} = (16, 23, 15, 1)
437: P_{15031} = (22, 20, 13, 1)
                                                                491: P_{17179} = (26, 23, 15, 1)
438: P_{15047} = (6, 21, 13, 1)
                                                                492: P_{17196} = (11, 24, 15, 1)
439: P_{15058} = (17, 21, 13, 1)
                                                                493: P_{17206} = (21, 24, 15, 1)
440: P_{15099} = (26, 22, 13, 1)
                                                                494: P_{17264} = (15, 26, 15, 1)
441: P_{15104} = (31, 22, 13, 1)
                                                                495: P_{17270} = (21, 26, 15, 1)
442: P_{15142} = (5, 24, 13, 1)
                                                                496: P_{17356} = (11, 29, 15, 1)
443: P_{15162} = (25, 24, 13, 1)
                                                                497: P_{17368} = (23, 29, 15, 1)
444: P_{15204} = (3, 26, 13, 1)
                                                                498: P_{17383} = (6, 30, 15, 1)
445: P_{15228} = (27, 26, 13, 1)
                                                                499: P_{17406} = (29, 30, 15, 1)
446: P_{15235} = (2, 27, 13, 1)
                                                                500: P_{17479} = (6, 1, 16, 1)
447: P_{15249} = (16, 27, 13, 1)
                                                                501: P_{17496} = (23, 1, 16, 1)
448: P_{15287} = (22, 28, 13, 1)
                                                                502: P_{17521} = (16, 2, 16, 1)
449: P_{15289} = (24, 28, 13, 1)
                                                                503: P_{17523} = (18, 2, 16, 1)
450: P_{15546} = (25, 4, 14, 1)
                                                                504: P_{17581} = (12, 4, 16, 1)
451: P_{15551} = (30, 4, 14, 1)
                                                                505: P_{17590} = (21, 4, 16, 1)
452: P_{15600} = (15, 6, 14, 1)
                                                                506: P_{17609} = (8, 5, 16, 1)
453: P_{15642} = (25, 7, 14, 1)
                                                                507: P_{17616} = (15, 5, 16, 1)
454: P_{15644} = (27, 7, 14, 1)
                                                                508: P_{17636} = (3, 6, 16, 1)
455: P_{15815} = (6, 13, 14, 1)
                                                                509: P_{17662} = (29, 6, 16, 1)
456: P_{15816} = (7, 13, 14, 1)
                                                                510: P_{17670} = (5, 7, 16, 1)
457: P_{15849} = (8, 14, 14, 1)
                                                                511: P_{17690} = (25, 7, 16, 1)
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566: P_{19594} = (9, 3, 18, 1)
512: P_{17731} = (2, 9, 16, 1)
513: P_{17751} = (22, 9, 16, 1)
                                                                567: P_{19667} = (18, 5, 18, 1)
514: P_{17810} = (17, 11, 16, 1)
                                                                568: P_{19672} = (23, 5, 18, 1)
515: P_{17838} = (13, 12, 16, 1)
                                                                569: P_{19718} = (5, 7, 18, 1)
516: P_{17851} = (26, 12, 16, 1)
                                                                570: P_{19740} = (27, 7, 18, 1)
517: P_{17861} = (4, 13, 16, 1)
                                                                571: P_{19770} = (25, 8, 18, 1)
518: P_{17884} = (27, 13, 16, 1)
                                                                572: P_{19774} = (29, 8, 18, 1)
519: P_{17980} = (27, 16, 16, 1)
                                                                573: P_{19825} = (16, 10, 18, 1)
520: P_{18010} = (25, 17, 16, 1)
                                                                574: P_{19836} = (27, 10, 18, 1)
521: P_{18019} = (2, 18, 16, 1)
                                                                575: P_{19946} = (9, 14, 18, 1)
522: P_{18033} = (16, 18, 16, 1)
                                                                576: P_{19966} = (29, 14, 18, 1)
523: P_{18136} = (23, 21, 16, 1)
                                                                577: P_{19975} = (6, 15, 18, 1)
524: P_{18142} = (29, 21, 16, 1)
                                                                578: P_{19994} = (25, 15, 18, 1)
525: P_{18180} = (3, 23, 16, 1)
                                                                579: P_{20081} = (16, 18, 18, 1)
526: P_{18199} = (22, 23, 16, 1)
                                                                580: P_{20125} = (28, 19, 18, 1)
527: P_{18213} = (4, 24, 16, 1)
                                                                581: P_{20184} = (23, 21, 18, 1)
528: P_{18214} = (5, 24, 16, 1)
                                                                582: P_{20192} = (31, 21, 18, 1)
                                                                583: P_{20199} = (6, 22, 18, 1)
529: P_{18249} = (8, 25, 16, 1)
530: P_{18259} = (18, 25, 16, 1)
                                                                584: P_{20221} = (28, 22, 18, 1)
531: P_{18326} = (21, 27, 16, 1)
                                                                585: P_{20230} = (5, 23, 18, 1)
532: P_{18331} = (26, 27, 16, 1)
                                                                586: P_{20243} = (18, 23, 18, 1)
533: P_{18381} = (12, 29, 16, 1)
                                                                587: P_{20296} = (7, 25, 18, 1)
534: P_{18384} = (15, 29, 16, 1)
                                                                588: P_{20320} = (31, 25, 18, 1)
535: P_{18439} = (6, 31, 16, 1)
                                                                589: P_{20605} = (28, 2, 19, 1)
536: P_{18446} = (13, 31, 16, 1)
                                                                590: P_{20606} = (29, 2, 19, 1)
537: P_{18819} = (2, 11, 17, 1)
                                                                591: P_{20644} = (3, 4, 19, 1)
538: P_{18820} = (3, 11, 17, 1)
                                                                592: P_{20666} = (25, 4, 19, 1)
539: P_{18862} = (13, 12, 17, 1)
                                                                593: P_{20738} = (1, 7, 19, 1)
540: P_{18876} = (27, 12, 17, 1)
                                                                594: P_{20767} = (30, 7, 19, 1)
541: P_{18916} = (3, 14, 17, 1)
                                                                595: P_{20770} = (1, 8, 19, 1)
542: P_{18933} = (20, 14, 17, 1)
                                                                596: P_{20773} = (4, 8, 19, 1)
543: P_{18955} = (10, 15, 17, 1)
                                                                597: P_{20852} = (19, 10, 19, 1)
544: P_{18967} = (22, 15, 17, 1)
                                                                598: P_{20858} = (25, 10, 19, 1)
545: P_{18987} = (10, 16, 17, 1)
                                                                599: P_{20894} = (29, 11, 19, 1)
546: P_{19018} = (9, 17, 17, 1)
                                                                600: P_{20895} = (30, 11, 19, 1)
547: P_{19045} = (4, 18, 17, 1)
                                                                601: P_{20937} = (8, 13, 19, 1)
548: P_{19064} = (23, 18, 17, 1)
                                                                602: P_{20949} = (20, 13, 19, 1)
549: P_{19096} = (23, 19, 17, 1)
                                                                603: P_{21092} = (3, 18, 19, 1)
550: P_{19100} = (27, 19, 17, 1)
                                                                604: P_{21135} = (14, 19, 19, 1)
551: P_{19170} = (1, 22, 17, 1)
                                                                605: P_{21259} = (10, 23, 19, 1)
552: P_{19193} = (24, 22, 17, 1)
                                                                606: P_{21277} = (28, 23, 19, 1)
553: P_{19203} = (2, 23, 17, 1)
                                                                607: P_{21323} = (10, 25, 19, 1)
554: P_{19223} = (22, 23, 17, 1)
                                                                608: P_{21332} = (19, 25, 19, 1)
555: P_{19249} = (16, 24, 17, 1)
                                                                609: P_{21353} = (8, 26, 19, 1)
556: P_{19306} = (9, 26, 17, 1)
                                                                610: P_{21359} = (14, 26, 19, 1)
557: P_{19310} = (13, 26, 17, 1)
                                                                611: P_{21413} = (4, 28, 19, 1)
558: P_{19349} = (20, 27, 17, 1)
                                                                612: P_{21429} = (20, 28, 19, 1)
559: P_{19355} = (26, 27, 17, 1)
                                                                613: P_{21459} = (18, 29, 19, 1)
560: P_{19417} = (24, 29, 17, 1)
                                                                614: P_{21582} = (13, 1, 20, 1)
561: P_{19419} = (26, 29, 17, 1)
                                                                615: P_{21593} = (24, 1, 20, 1)
562: P_{19426} = (1, 30, 17, 1)
                                                                616: P_{21612} = (11, 2, 20, 1)
563: P_{19429} = (4, 30, 17, 1)
                                                                617: P_{21614} = (13, 2, 20, 1)
564: P_{19572} = (19, 2, 18, 1)
                                                                618: P_{21652} = (19, 3, 20, 1)
565: P_{19592} = (7, 3, 18, 1)
                                                                619: P_{21660} = (27, 3, 20, 1)
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674: P_{23688} = (7, 3, 22, 1)
620: P_{21668} = (3, 4, 20, 1)
621: P_{21695} = (30, 4, 20, 1)
                                                                675: P_{23694} = (13, 3, 22, 1)
622: P_{21740} = (11, 6, 20, 1)
                                                                676: P_{23728} = (15, 4, 22, 1)
623: P_{21746} = (17, 6, 20, 1)
                                                                677: P_{23729} = (16, 4, 22, 1)
624: P_{21861} = (4, 10, 20, 1)
                                                                678: P_{23761} = (16, 5, 22, 1)
625: P_{21866} = (9, 10, 20, 1)
                                                                679: P_{23762} = (17, 5, 22, 1)
626: P_{21925} = (4, 12, 20, 1)
                                                                680: P_{23864} = (23, 8, 22, 1)
627: P_{21944} = (23, 12, 20, 1)
                                                                681: P_{23881} = (8, 9, 22, 1)
628: P_{22027} = (10, 15, 20, 1)
                                                                682: P_{23899} = (26, 9, 22, 1)
629: P_{22036} = (19, 15, 20, 1)
                                                                683: P_{23938} = (1, 11, 22, 1)
630: P_{22114} = (1, 18, 20, 1)
                                                                684: P_{23944} = (7, 11, 22, 1)
631: P_{22136} = (23, 18, 20, 1)
                                                                685: P_{24009} = (8, 13, 22, 1)
632: P_{22187} = (10, 20, 20, 1)
                                                                686: P_{24018} = (17, 13, 22, 1)
633: P_{22236} = (27, 21, 20, 1)
                                                                687: P_{24099} = (2, 16, 22, 1)
634: P_{22338} = (1, 25, 20, 1)
                                                                688: P_{24128} = (31, 16, 22, 1)
635: P_{22368} = (31, 25, 20, 1)
                                                                689: P_{24133} = (4, 17, 22, 1)
636: P_{22371} = (2, 26, 20, 1)
                                                                690: P_{24139} = (10, 17, 22, 1)
637: P_{22372} = (3, 26, 20, 1)
                                                                691: P_{24171} = (10, 18, 22, 1)
638: P_{22403} = (2, 27, 20, 1)
                                                                692: P_{24191} = (30, 18, 22, 1)
639: P_{22410} = (9, 27, 20, 1)
                                                                693: P_{24226} = (1, 20, 22, 1)
640: P_{22489} = (24, 29, 20, 1)
                                                                694: P_{24234} = (9, 20, 22, 1)
641: P_{22496} = (31, 29, 20, 1)
                                                                695: P_{24319} = (30, 22, 22, 1)
642: P_{22518} = (21, 30, 20, 1)
                                                                696: P_{24325} = (4, 23, 22, 1)
643: P_{22546} = (17, 31, 20, 1)
                                                                697: P_{24394} = (9, 25, 22, 1)
644: P_{22559} = (30, 31, 20, 1)
                                                                698: P_{24406} = (21, 25, 22, 1)
645: P_{22595} = (2, 1, 21, 1)
                                                                699: P_{24539} = (26, 29, 22, 1)
646: P_{22615} = (22, 1, 21, 1)
                                                                700: P_{24544} = (31, 29, 22, 1)
647: P_{22680} = (23, 3, 21, 1)
                                                                701: P_{24558} = (13, 30, 22, 1)
648: P_{22687} = (30, 3, 21, 1)
                                                                702: P_{24560} = (15, 30, 22, 1)
649: P_{22756} = (3, 6, 21, 1)
                                                                703: P_{24647} = (6, 1, 23, 1)
650: P_{22777} = (24, 6, 21, 1)
                                                                704: P_{24657} = (16, 1, 23, 1)
651: P_{22786} = (1, 7, 21, 1)
                                                                705: P_{24690} = (17, 2, 23, 1)
652: P_{22809} = (24, 7, 21, 1)
                                                                706: P_{24693} = (20, 2, 23, 1)
653: P_{22850} = (1, 9, 21, 1)
                                                                707: P_{24791} = (22, 5, 23, 1)
654: P_{22865} = (16, 9, 21, 1)
                                                                708: P_{24848} = (15, 7, 23, 1)
655: P_{22903} = (22, 10, 21, 1)
                                                                709: P_{24853} = (20, 7, 23, 1)
656: P_{22907} = (26, 10, 21, 1)
                                                                710: P_{24905} = (8, 9, 23, 1)
                                                                711: P_{24924} = (27, 9, 23, 1)
657: P_{22980} = (3, 13, 21, 1)
658: P_{23002} = (25, 13, 21, 1)
                                                                712: P_{24936} = (7, 10, 23, 1)
659: P_{23018} = (9, 14, 21, 1)
                                                                713: P_{24938} = (9, 10, 23, 1)
660: P_{23035} = (26, 14, 21, 1)
                                                                714: P_{25090} = (1, 15, 23, 1)
661: P_{23107} = (2, 17, 21, 1)
                                                                715: P_{25116} = (27, 15, 23, 1)
662: P_{23120} = (15, 17, 21, 1)
                                                                716: P_{25160} = (7, 17, 23, 1)
663: P_{23192} = (23, 19, 21, 1)
                                                                717: P_{25161} = (8, 17, 23, 1)
664: P_{23200} = (31, 19, 21, 1)
                                                                718: P_{25222} = (5, 19, 23, 1)
665: P_{23232} = (31, 20, 21, 1)
                                                                719: P_{25232} = (15, 19, 23, 1)
666: P_{23248} = (15, 21, 21, 1)
                                                                720: P_{25322} = (9, 22, 23, 1)
667: P_{23306} = (9, 23, 21, 1)
                                                                721: P_{25363} = (18, 23, 23, 1)
668: P_{23322} = (25, 23, 21, 1)
                                                                722: P_{25457} = (16, 26, 23, 1)
669: P_{23413} = (20, 26, 21, 1)
                                                                723: P_{25459} = (18, 26, 23, 1)
670: P_{23569} = (16, 31, 21, 1)
                                                                724: P_{25506} = (1, 28, 23, 1)
671: P_{23583} = (30, 31, 21, 1)
                                                                725: P_{25526} = (21, 28, 23, 1)
672: P_{23619} = (2, 1, 22, 1)
                                                                726: P_{25554} = (17, 29, 23, 1)
673: P_{23638} = (21, 1, 22, 1)
                                                                727: P_{25558} = (21, 29, 23, 1)
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728: P_{25574} = (5, 30, 23, 1)
                                                                782: P_{27441} = (16, 24, 25, 1)
                                                                783: P_{27476} = (19, 25, 25, 1)
729: P_{25575} = (6, 30, 23, 1)
730: P_{25678} = (13, 1, 24, 1)
                                                                784: P_{27531} = (10, 27, 25, 1)
731: P_{25685} = (20, 1, 24, 1)
                                                                785: P_{27533} = (12, 27, 25, 1)
732: P_{25738} = (9, 3, 24, 1)
                                                                786: P_{27586} = (1, 29, 25, 1)
733: P_{25742} = (13, 3, 24, 1)
                                                                787: P_{27596} = (11, 29, 25, 1)
734: P_{25773} = (12, 4, 24, 1)
                                                                788: P_{27779} = (2, 3, 26, 1)
735: P_{25790} = (29, 4, 24, 1)
                                                                789: P_{27781} = (4, 3, 26, 1)
736: P_{25906} = (17, 8, 24, 1)
                                                                790: P_{27814} = (5, 4, 26, 1)
737: P_{25920} = (31, 8, 24, 1)
                                                                791: P_{27831} = (22, 4, 26, 1)
738: P_{25987} = (2, 11, 24, 1)
                                                                792: P_{27843} = (2, 5, 26, 1)
739: P_{25995} = (10, 11, 24, 1)
                                                                793: P_{27856} = (15, 5, 26, 1)
740: P_{26027} = (10, 12, 24, 1)
                                                                794: P_{27874} = (1, 6, 26, 1)
741: P_{26038} = (21, 12, 24, 1)
                                                                795: P_{27894} = (21, 6, 26, 1)
742: P_{26092} = (11, 14, 24, 1)
                                                                796: P_{27911} = (6, 7, 26, 1)
743: P_{26102} = (21, 14, 24, 1)
                                                                797: P_{27921} = (16, 7, 26, 1)
744: P_{26202} = (25, 17, 24, 1)
                                                                798: P_{27938} = (1, 8, 26, 1)
745: P_{26258} = (17, 19, 24, 1)
                                                                799: P_{27950} = (13, 8, 26, 1)
746: P_{26261} = (20, 19, 24, 1)
                                                                800: P_{28005} = (4, 10, 26, 1)
747: P_{26334} = (29, 21, 24, 1)
                                                                801: P_{28008} = (7, 10, 26, 1)
748: P_{26336} = (31, 21, 24, 1)
                                                                802: P_{28040} = (7, 11, 26, 1)
749: P_{26349} = (12, 22, 24, 1)
                                                                803: P_{28046} = (13, 11, 26, 1)
750: P_{26365} = (28, 22, 24, 1)
                                                                804: P_{28263} = (6, 18, 26, 1)
751: P_{26370} = (1, 23, 24, 1)
                                                                805: P_{28287} = (30, 18, 26, 1)
                                                                806: P_{28306} = (17, 19, 26, 1)
752: P_{26397} = (28, 23, 24, 1)
753: P_{26410} = (9, 24, 24, 1)
                                                                807: P_{28311} = (22, 19, 26, 1)
754: P_{26444} = (11, 25, 24, 1)
                                                                808: P_{28380} = (27, 21, 26, 1)
755: P_{26626} = (1, 31, 24, 1)
                                                                809: P_{28486} = (5, 25, 26, 1)
756: P_{26627} = (2, 31, 24, 1)
                                                                810: P_{28502} = (21, 25, 26, 1)
757: P_{26693} = (4, 1, 25, 1)
                                                                811: P_{28528} = (15, 26, 26, 1)
758: P_{26717} = (28, 1, 25, 1)
                                                                812: P_{28575} = (30, 27, 26, 1)
759: P_{26838} = (21, 5, 25, 1)
                                                                813: P_{28689} = (16, 31, 26, 1)
760: P_{26844} = (27, 5, 25, 1)
                                                                814: P_{28690} = (17, 31, 26, 1)
761: P_{26860} = (11, 6, 25, 1)
                                                                815: P_{28744} = (7, 1, 27, 1)
762: P_{26877} = (28, 6, 25, 1)
                                                                816: P_{28766} = (29, 1, 27, 1)
763: P_{26959} = (14, 9, 25, 1)
                                                                817: P_{28773} = (4, 2, 27, 1)
764: P_{26964} = (19, 9, 25, 1)
                                                                818: P_{28782} = (13, 2, 27, 1)
765: P_{27001} = (24, 10, 25, 1)
                                                                819: P_{28803} = (2, 3, 27, 1)
766: P_{27012} = (3, 11, 25, 1)
                                                                820: P_{28806} = (5, 3, 27, 1)
767: P_{27019} = (10, 11, 25, 1)
                                                                821: P_{28838} = (5, 4, 27, 1)
768: P_{27055} = (14, 12, 25, 1)
                                                                822: P_{28856} = (23, 4, 27, 1)
769: P_{27057} = (16, 12, 25, 1)
                                                                823: P_{28935} = (6,7,27,1)
770: P_{27077} = (4, 13, 25, 1)
                                                                824: P_{28946} = (17, 7, 27, 1)
771: P_{27091} = (18, 13, 25, 1)
                                                                825: P_{28995} = (2, 9, 27, 1)
772: P_{27138} = (1, 15, 25, 1)
                                                                826: P_{29022} = (29, 9, 27, 1)
773: P_{27158} = (21, 15, 25, 1)
                                                                827: P_{29073} = (16, 11, 27, 1)
774: P_{27182} = (13, 16, 25, 1)
                                                                828: P_{29084} = (27, 11, 27, 1)
775: P_{27200} = (31, 16, 25, 1)
                                                                829: P_{29103} = (14, 12, 27, 1)
776: P_{27213} = (12, 17, 25, 1)
                                                                830: P_{29107} = (18, 12, 27, 1)
777: P_{27214} = (13, 17, 25, 1)
                                                                831: P_{29124} = (3, 13, 27, 1)
778: P_{27292} = (27, 19, 25, 1)
                                                                832: P_{29144} = (23, 13, 27, 1)
779: P_{27296} = (31, 19, 25, 1)
                                                                833: P_{29191} = (6, 15, 27, 1)
780: P_{27364} = (3, 22, 25, 1)
                                                                834: P_{29201} = (16, 15, 27, 1)
781: P_{27379} = (18, 22, 25, 1)
                                                                835: P_{29228} = (11, 16, 27, 1)
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890: P_{30963} = (18, 6, 29, 1)
836: P_{29244} = (27, 16, 27, 1)
837: P_{29356} = (11, 20, 27, 1)
                                                                891: P_{31042} = (1, 9, 29, 1)
838: P_{29359} = (14, 20, 27, 1)
                                                                892: P_{31065} = (24, 9, 29, 1)
839: P_{29389} = (12, 21, 27, 1)
                                                                893: P_{31212} = (11, 14, 29, 1)
840: P_{29390} = (13, 21, 27, 1)
                                                                894: P_{31217} = (16, 14, 29, 1)
841: P_{29448} = (7, 23, 27, 1)
                                                                895: P_{31270} = (5, 16, 29, 1)
842: P_{29466} = (25, 23, 27, 1)
                                                                896: P_{31284} = (19, 16, 29, 1)
843: P_{29508} = (3, 25, 27, 1)
                                                                897: P_{31341} = (12, 18, 29, 1)
844: P_{29523} = (18, 25, 27, 1)
                                                                898: P_{31348} = (19, 18, 29, 1)
845: P_{29557} = (20, 26, 27, 1)
                                                                899: P_{31389} = (28, 19, 29, 1)
846: P_{29573} = (4, 27, 27, 1)
                                                                900: P_{31405} = (12, 20, 29, 1)
847: P_{29613} = (12, 28, 27, 1)
                                                                901: P_{31408} = (15, 20, 29, 1)
848: P_{29621} = (20, 28, 27, 1)
                                                                902: P_{31464} = (7, 22, 29, 1)
849: P_{29650} = (17, 29, 27, 1)
                                                                903: P_{31475} = (18, 22, 29, 1)
850: P_{29658} = (25, 29, 27, 1)
                                                                904: P_{31601} = (16, 26, 29, 1)
851: P_{29723} = (26, 31, 27, 1)
                                                                905: P_{31609} = (24, 26, 29, 1)
852: P_{29765} = (4, 1, 28, 1)
                                                                906: P_{31651} = (2, 28, 29, 1)
                                                                907: P_{31695} = (14, 29, 29, 1)
853: P_{29786} = (25, 1, 28, 1)
854: P_{29854} = (29, 3, 28, 1)
                                                                908: P_{31753} = (8, 31, 29, 1)
855: P_{29908} = (19, 5, 28, 1)
                                                                909: P_{31759} = (14, 31, 29, 1)
856: P_{29913} = (24, 5, 28, 1)
                                                                910: P_{31863} = (22, 2, 30, 1)
857: P_{30003} = (18, 8, 28, 1)
                                                                911: P_{31867} = (26, 2, 30, 1)
858: P_{30009} = (24, 8, 28, 1)
                                                                912: P_{32055} = (22, 8, 30, 1)
859: P_{30082} = (1, 11, 28, 1)
                                                                913: P_{32063} = (30, 8, 30, 1)
860: P_{30094} = (13, 11, 28, 1)
                                                                914: P_{32079} = (14, 9, 30, 1)
861: P_{30117} = (4, 12, 28, 1)
                                                                915: P_{32085} = (20, 9, 30, 1)
862: P_{30144} = (31, 12, 28, 1)
                                                                916: P_{32171} = (10, 12, 30, 1)
863: P_{30180} = (3, 14, 28, 1)
                                                                917: P_{32180} = (19, 12, 30, 1)
864: P_{30202} = (25, 14, 28, 1)
                                                                918: P_{32295} = (6, 16, 30, 1)
865: P_{30318} = (13, 18, 28, 1)
                                                                919: P_{32308} = (19, 16, 30, 1)
866: P_{30324} = (19, 18, 28, 1)
                                                                920: P_{32386} = (1, 19, 30, 1)
867: P_{30374} = (5, 20, 28, 1)
                                                                921: P_{32387} = (2, 19, 30, 1)
868: P_{30376} = (7, 20, 28, 1)
                                                                922: P_{32448} = (31, 20, 30, 1)
869: P_{30402} = (1, 21, 28, 1)
                                                                923: P_{32451} = (2, 21, 30, 1)
870: P_{30408} = (7, 21, 28, 1)
                                                                924: P_{32455} = (6, 21, 30, 1)
871: P_{30503} = (6, 24, 28, 1)
                                                                925: P_{32489} = (8, 22, 30, 1)
872: P_{30508} = (11, 24, 28, 1)
                                                                926: P_{32511} = (30, 22, 30, 1)
873: P_{30598} = (5, 27, 28, 1)
                                                                927: P_{32546} = (1, 24, 30, 1)
874: P_{30599} = (6, 27, 28, 1)
                                                                928: P_{32559} = (14, 24, 30, 1)
875: P_{30656} = (31, 28, 28, 1)
                                                                929: P_{32661} = (20, 27, 30, 1)
876: P_{30675} = (18, 29, 28, 1)
                                                                930: P_{32662} = (21, 27, 30, 1)
                                                                931: P_{32681} = (8, 28, 30, 1)
877: P_{30692} = (3, 30, 28, 1)
878: P_{30700} = (11, 30, 28, 1)
                                                                932: P_{32694} = (21, 28, 30, 1)
                                                                933: P_{32747} = (10, 30, 30, 1)
879: P_{30792} = (7, 1, 29, 1)
880: P_{30812} = (27, 1, 29, 1)
                                                                934: P_{32795} = (26, 31, 30, 1)
                                                                935: P_{32925} = (28, 3, 31, 1)
881: P_{30821} = (4, 2, 29, 1)
882: P_{30828} = (11, 2, 29, 1)
                                                                936: P_{32928} = (31, 3, 31, 1)
883: P_{30853} = (4, 3, 29, 1)
                                                                937: P_{33040} = (15, 7, 31, 1)
884: P_{30854} = (5, 3, 29, 1)
                                                                938: P_{33053} = (28, 7, 31, 1)
885: P_{30896} = (15, 4, 29, 1)
                                                                939: P_{33061} = (4, 8, 31, 1)
886: P_{30908} = (27, 4, 29, 1)
                                                                940: P_{33070} = (13, 8, 31, 1)
887: P_{30915} = (2, 5, 29, 1)
                                                                941: P_{33139} = (18, 10, 31, 1)
888: P_{30921} = (8, 5, 29, 1)
                                                                942: P_{33141} = (20, 10, 31, 1)
889: P_{30946} = (1, 6, 29, 1)
                                                                943: P_{33175} = (22, 11, 31, 1)
```

 $944: P_{33178} = (25, 11, 31, 1)$ 953: $P_{33695} = (30, 27, 31, 1)$ $945: P_{33429} = (20, 19, 31, 1)$ 954: $P_{33700} = (3, 28, 31, 1)$ 946: $P_{33431} = (22, 19, 31, 1)$ $955: P_{33728} = (31, 28, 31, 1)$ $947: P_{33520} = (15, 22, 31, 1)$ 956: $P_{33750} = (21, 29, 31, 1)$ $948: P_{33529} = (24, 22, 31, 1)$ 957: $P_{33754} = (25, 29, 31, 1)$ $949: P_{33572} = (3, 24, 31, 1)$ 958: $P_{33782} = (21, 30, 31, 1)$ 959: $P_{33797} = (4, 31, 31, 1)$ 950: $P_{33582} = (13, 24, 31, 1)$ 951: $P_{33651} = (18, 26, 31, 1)$ $952: P_{33657} = (24, 26, 31, 1)$

Line Intersection Graph

 $\begin{array}{c|c} 01234 \\ \hline 000100 \\ 100110 \\ 211011 \\ 301100 \\ 400100 \end{array}$

Neighbor sets in the line intersection graph:

Line 0 intersects

	Line	ℓ_2
$_{ m in}$	point	P_2

Line 1 intersects

Line	ℓ_2	ℓ_3
in point	P_3	P_3

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_4
in point	P_2	P_3	P_3	P_{2082}

Line 3 intersects

Line	ℓ_1	ℓ_2
in point	P_3	P_3

Line 4 intersects

Line	ℓ_2
in point	P_{2082}

The surface has 1121 points: Too many to print.