

Rank-74531 over GF(64)

January 15, 2021

The equation

The equation of the surface is :

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

(0, 0, 0, 0, 0, 1, 0, 0, 1, 1, 0, 0, 0, 1, 0, 0, 0)

The point rank of the equation over GF(64) is -2130440123

General information

Number of lines	10
Number of points	4353
Number of singular points	1
Number of Eckardt points	0
Number of double points	15
Number of single points	615
Number of points off lines	3722
Number of Hesse planes	0
Number of axes	0
Type of points on lines	65^{10}
Type of lines on points	$5, 2^{15}, 1^{615}, 0^{3722}$

Singular Points

The surface has 1 singular points:

$$0 : P_2 = \mathbf{P}(0, 0, 1, 0) = \mathbf{P}(0, 0, 1, 0)$$

The 10 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_0 = \mathbf{PI}(1, 0, 0, 0, 0, 0)_0$$

$$\begin{aligned}
\ell_1 &= \begin{bmatrix} 1 & \epsilon^{42} & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{237112} = \begin{bmatrix} 1 & 56 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{237112} = \mathbf{Pl}(0, 0, 57, 0, 0, 1)_{277640} \\
\ell_2 &= \begin{bmatrix} 1 & \epsilon^{21} & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{241273} = \begin{bmatrix} 1 & 57 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{241273} = \mathbf{Pl}(0, 0, 56, 0, 0, 1)_{277513} \\
\ell_3 &= \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{17043457} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{17043457} = \mathbf{Pl}(0, 0, 0, 1, 0, 1)_{278529} \\
\ell_4 &= \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \mathbf{Pl}(0, 1, 0, 0, 0, 0)_1 \\
\ell_5 &= \begin{bmatrix} 1 & \epsilon^{21} & 0 & \epsilon^{42} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{15154297} = \begin{bmatrix} 1 & 57 & 0 & 56 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{15154297} = \mathbf{Pl}(0, 57, 56, 0, 0, 1)_{277633} \\
\ell_6 &= \begin{bmatrix} 1 & \epsilon^{42} & 0 & \epsilon^{21} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{15416440} = \begin{bmatrix} 1 & 56 & 0 & 57 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{15416440} = \mathbf{Pl}(0, 56, 57, 0, 0, 1)_{277759} \\
\ell_7 &= \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 1 \end{bmatrix}_{270530} = \begin{bmatrix} 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 1 \end{bmatrix}_{270530} = \mathbf{Pl}(1, 0, 1, 1, 1, 1)_{544579} \\
\ell_8 &= \begin{bmatrix} 1 & 0 & \epsilon^{42} & \epsilon^{21} \\ 0 & 1 & \epsilon^{42} & \epsilon^{42} \end{bmatrix}_{15415984} = \begin{bmatrix} 1 & 0 & 56 & 57 \\ 0 & 1 & 56 & 56 \end{bmatrix}_{15415984} = \mathbf{Pl}(1, 1, 57, 56, 1, 1)_{774717} \\
\ell_9 &= \begin{bmatrix} 1 & 0 & \epsilon^{21} & \epsilon^{42} \\ 0 & 1 & \epsilon^{21} & \epsilon^{21} \end{bmatrix}_{15153906} = \begin{bmatrix} 1 & 0 & 57 & 56 \\ 0 & 1 & 57 & 57 \end{bmatrix}_{15153906} = \mathbf{Pl}(1, 1, 56, 57, 1, 1)_{770874}
\end{aligned}$$

Rank of lines: (0, 237112, 241273, 17043457, 17047616, 15154297, 15416440, 270530, 15415984, 15153906)
Rank of points on Klein quadric: (0, 277640, 277513, 278529, 1, 277633, 277759, 544579, 774717, 770874)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 15 Double points:
The double points on the surface are:

$$\begin{aligned}
P_{61} &= (57, 1, 0, 0) = \ell_0 \cap \ell_1 & P_{11905} &= (0, 57, 1, 1) = \ell_3 \cap \ell_8 \\
P_{60} &= (56, 1, 0, 0) = \ell_0 \cap \ell_2 & P_{11841} &= (0, 56, 1, 1) = \ell_3 \cap \ell_9 \\
P_1 &= (0, 1, 0, 0) = \ell_0 \cap \ell_3 & P_{11898} &= (57, 56, 1, 1) = \ell_5 \cap \ell_7 \\
P_5 &= (1, 1, 0, 0) = \ell_0 \cap \ell_7 & P_{237178} &= (57, 56, 56, 1) = \ell_5 \cap \ell_8 \\
P_{3652} &= (1, 56, 1, 0) = \ell_1 \cap \ell_8 & P_{11961} &= (56, 57, 1, 1) = \ell_6 \cap \ell_7 \\
P_{3716} &= (1, 57, 1, 0) = \ell_2 \cap \ell_9 & P_{241337} &= (56, 57, 57, 1) = \ell_6 \cap \ell_9 \\
P_{8258} &= (0, 0, 1, 1) = \ell_3 \cap \ell_4 & P_{4227} &= (1, 1, 0, 1) = \ell_8 \cap \ell_9 \\
P_{8322} &= (0, 1, 1, 1) = \ell_3 \cap \ell_7
\end{aligned}$$

Single Points

The surface has 615 single points:
The single points on the surface are:

0 : $P_0 = (1, 0, 0, 0)$ lies on line ℓ_0
 1 : $P_3 = (0, 0, 0, 1)$ lies on line ℓ_4
 2 : $P_6 = (2, 1, 0, 0)$ lies on line ℓ_0
 3 : $P_7 = (3, 1, 0, 0)$ lies on line ℓ_0
 4 : $P_8 = (4, 1, 0, 0)$ lies on line ℓ_0
 5 : $P_9 = (5, 1, 0, 0)$ lies on line ℓ_0
 6 : $P_{10} = (6, 1, 0, 0)$ lies on line ℓ_0
 7 : $P_{11} = (7, 1, 0, 0)$ lies on line ℓ_0
 8 : $P_{12} = (8, 1, 0, 0)$ lies on line ℓ_0
 9 : $P_{13} = (9, 1, 0, 0)$ lies on line ℓ_0
 10 : $P_{14} = (10, 1, 0, 0)$ lies on line ℓ_0
 11 : $P_{15} = (11, 1, 0, 0)$ lies on line ℓ_0
 12 : $P_{16} = (12, 1, 0, 0)$ lies on line ℓ_0
 13 : $P_{17} = (13, 1, 0, 0)$ lies on line ℓ_0
 14 : $P_{18} = (14, 1, 0, 0)$ lies on line ℓ_0
 15 : $P_{19} = (15, 1, 0, 0)$ lies on line ℓ_0
 16 : $P_{20} = (16, 1, 0, 0)$ lies on line ℓ_0
 17 : $P_{21} = (17, 1, 0, 0)$ lies on line ℓ_0
 18 : $P_{22} = (18, 1, 0, 0)$ lies on line ℓ_0
 19 : $P_{23} = (19, 1, 0, 0)$ lies on line ℓ_0
 20 : $P_{24} = (20, 1, 0, 0)$ lies on line ℓ_0
 21 : $P_{25} = (21, 1, 0, 0)$ lies on line ℓ_0
 22 : $P_{26} = (22, 1, 0, 0)$ lies on line ℓ_0
 23 : $P_{27} = (23, 1, 0, 0)$ lies on line ℓ_0
 24 : $P_{28} = (24, 1, 0, 0)$ lies on line ℓ_0
 25 : $P_{29} = (25, 1, 0, 0)$ lies on line ℓ_0
 26 : $P_{30} = (26, 1, 0, 0)$ lies on line ℓ_0
 27 : $P_{31} = (27, 1, 0, 0)$ lies on line ℓ_0
 28 : $P_{32} = (28, 1, 0, 0)$ lies on line ℓ_0
 29 : $P_{33} = (29, 1, 0, 0)$ lies on line ℓ_0
 30 : $P_{34} = (30, 1, 0, 0)$ lies on line ℓ_0
 31 : $P_{35} = (31, 1, 0, 0)$ lies on line ℓ_0
 32 : $P_{36} = (32, 1, 0, 0)$ lies on line ℓ_0
 33 : $P_{37} = (33, 1, 0, 0)$ lies on line ℓ_0
 34 : $P_{38} = (34, 1, 0, 0)$ lies on line ℓ_0
 35 : $P_{39} = (35, 1, 0, 0)$ lies on line ℓ_0
 36 : $P_{40} = (36, 1, 0, 0)$ lies on line ℓ_0
 37 : $P_{41} = (37, 1, 0, 0)$ lies on line ℓ_0
 38 : $P_{42} = (38, 1, 0, 0)$ lies on line ℓ_0
 39 : $P_{43} = (39, 1, 0, 0)$ lies on line ℓ_0
 40 : $P_{44} = (40, 1, 0, 0)$ lies on line ℓ_0
 41 : $P_{45} = (41, 1, 0, 0)$ lies on line ℓ_0
 42 : $P_{46} = (42, 1, 0, 0)$ lies on line ℓ_0
 43 : $P_{47} = (43, 1, 0, 0)$ lies on line ℓ_0
 44 : $P_{48} = (44, 1, 0, 0)$ lies on line ℓ_0
 45 : $P_{49} = (45, 1, 0, 0)$ lies on line ℓ_0
 46 : $P_{50} = (46, 1, 0, 0)$ lies on line ℓ_0
 47 : $P_{51} = (47, 1, 0, 0)$ lies on line ℓ_0
 48 : $P_{52} = (48, 1, 0, 0)$ lies on line ℓ_0
 49 : $P_{53} = (49, 1, 0, 0)$ lies on line ℓ_0
 50 : $P_{54} = (50, 1, 0, 0)$ lies on line ℓ_0
 51 : $P_{55} = (51, 1, 0, 0)$ lies on line ℓ_0
 52 : $P_{56} = (52, 1, 0, 0)$ lies on line ℓ_0
 53 : $P_{57} = (53, 1, 0, 0)$ lies on line ℓ_0

54 : $P_{58} = (54, 1, 0, 0)$ lies on line ℓ_0
 55 : $P_{59} = (55, 1, 0, 0)$ lies on line ℓ_0
 56 : $P_{62} = (58, 1, 0, 0)$ lies on line ℓ_0
 57 : $P_{63} = (59, 1, 0, 0)$ lies on line ℓ_0
 58 : $P_{64} = (60, 1, 0, 0)$ lies on line ℓ_0
 59 : $P_{65} = (61, 1, 0, 0)$ lies on line ℓ_0
 60 : $P_{66} = (62, 1, 0, 0)$ lies on line ℓ_0
 61 : $P_{67} = (63, 1, 0, 0)$ lies on line ℓ_0
 62 : $P_{187} = (56, 1, 1, 0)$ lies on line ℓ_2
 63 : $P_{188} = (57, 1, 1, 0)$ lies on line ℓ_1
 64 : $P_{212} = (17, 2, 1, 0)$ lies on line ℓ_2
 65 : $P_{214} = (19, 2, 1, 0)$ lies on line ℓ_1
 66 : $P_{300} = (41, 3, 1, 0)$ lies on line ℓ_2
 67 : $P_{301} = (42, 3, 1, 0)$ lies on line ℓ_1
 68 : $P_{357} = (34, 4, 1, 0)$ lies on line ℓ_2
 69 : $P_{361} = (38, 4, 1, 0)$ lies on line ℓ_1
 70 : $P_{413} = (26, 5, 1, 0)$ lies on line ℓ_2
 71 : $P_{418} = (31, 5, 1, 0)$ lies on line ℓ_1
 72 : $P_{502} = (51, 6, 1, 0)$ lies on line ℓ_2
 73 : $P_{504} = (53, 6, 1, 0)$ lies on line ℓ_1
 74 : $P_{526} = (11, 7, 1, 0)$ lies on line ℓ_2
 75 : $P_{527} = (12, 7, 1, 0)$ lies on line ℓ_1
 76 : $P_{616} = (37, 8, 1, 0)$ lies on line ℓ_2
 77 : $P_{624} = (45, 8, 1, 0)$ lies on line ℓ_1
 78 : $P_{663} = (20, 9, 1, 0)$ lies on line ℓ_1
 79 : $P_{672} = (29, 9, 1, 0)$ lies on line ℓ_2
 80 : $P_{759} = (52, 10, 1, 0)$ lies on line ℓ_2
 81 : $P_{769} = (62, 10, 1, 0)$ lies on line ℓ_1
 82 : $P_{778} = (7, 11, 1, 0)$ lies on line ℓ_1
 83 : $P_{783} = (12, 11, 1, 0)$ lies on line ℓ_2
 84 : $P_{842} = (7, 12, 1, 0)$ lies on line ℓ_2
 85 : $P_{846} = (11, 12, 1, 0)$ lies on line ℓ_1
 86 : $P_{949} = (50, 13, 1, 0)$ lies on line ℓ_1
 87 : $P_{962} = (63, 13, 1, 0)$ lies on line ℓ_2
 88 : $P_{985} = (22, 14, 1, 0)$ lies on line ℓ_2
 89 : $P_{987} = (24, 14, 1, 0)$ lies on line ℓ_1
 90 : $P_{1060} = (33, 15, 1, 0)$ lies on line ℓ_1
 91 : $P_{1073} = (46, 15, 1, 0)$ lies on line ℓ_2
 92 : $P_{1134} = (43, 16, 1, 0)$ lies on line ℓ_2
 93 : $P_{1150} = (59, 16, 1, 0)$ lies on line ℓ_1
 94 : $P_{1157} = (2, 17, 1, 0)$ lies on line ℓ_1
 95 : $P_{1174} = (19, 17, 1, 0)$ lies on line ℓ_2
 96 : $P_{1259} = (40, 18, 1, 0)$ lies on line ℓ_1
 97 : $P_{1277} = (58, 18, 1, 0)$ lies on line ℓ_2
 98 : $P_{1285} = (2, 19, 1, 0)$ lies on line ℓ_2
 99 : $P_{1300} = (17, 19, 1, 0)$ lies on line ℓ_1
 100 : $P_{1356} = (9, 20, 1, 0)$ lies on line ℓ_2
 101 : $P_{1376} = (29, 20, 1, 0)$ lies on line ℓ_1
 102 : $P_{1447} = (36, 21, 1, 0)$ lies on line ℓ_1
 103 : $P_{1460} = (49, 21, 1, 0)$ lies on line ℓ_2
 104 : $P_{1489} = (14, 22, 1, 0)$ lies on line ℓ_1
 105 : $P_{1499} = (24, 22, 1, 0)$ lies on line ℓ_2
 106 : $P_{1571} = (32, 23, 1, 0)$ lies on line ℓ_2
 107 : $P_{1594} = (55, 23, 1, 0)$ lies on line ℓ_1

108 : $P_{1617} = (14, 24, 1, 0)$ lies on line ℓ_2
 109 : $P_{1625} = (22, 24, 1, 0)$ lies on line ℓ_1
 110 : $P_{1714} = (47, 25, 1, 0)$ lies on line ℓ_1
 111 : $P_{1721} = (54, 25, 1, 0)$ lies on line ℓ_2
 112 : $P_{1736} = (5, 26, 1, 0)$ lies on line ℓ_1
 113 : $P_{1762} = (31, 26, 1, 0)$ lies on line ℓ_2
 114 : $P_{1834} = (39, 27, 1, 0)$ lies on line ℓ_2
 115 : $P_{1855} = (60, 27, 1, 0)$ lies on line ℓ_1
 116 : $P_{1903} = (44, 28, 1, 0)$ lies on line ℓ_2
 117 : $P_{1907} = (48, 28, 1, 0)$ lies on line ℓ_1
 118 : $P_{1932} = (9, 29, 1, 0)$ lies on line ℓ_1
 119 : $P_{1943} = (20, 29, 1, 0)$ lies on line ℓ_2
 120 : $P_{2022} = (35, 30, 1, 0)$ lies on line ℓ_1
 121 : $P_{2048} = (61, 30, 1, 0)$ lies on line ℓ_2
 122 : $P_{2056} = (5, 31, 1, 0)$ lies on line ℓ_2
 123 : $P_{2077} = (26, 31, 1, 0)$ lies on line ℓ_1
 124 : $P_{2138} = (23, 32, 1, 0)$ lies on line ℓ_1
 125 : $P_{2170} = (55, 32, 1, 0)$ lies on line ℓ_2
 126 : $P_{2194} = (15, 33, 1, 0)$ lies on line ℓ_2
 127 : $P_{2225} = (46, 33, 1, 0)$ lies on line ℓ_1
 128 : $P_{2247} = (4, 34, 1, 0)$ lies on line ℓ_1
 129 : $P_{2281} = (38, 34, 1, 0)$ lies on line ℓ_2
 130 : $P_{2337} = (30, 35, 1, 0)$ lies on line ℓ_2
 131 : $P_{2368} = (61, 35, 1, 0)$ lies on line ℓ_1
 132 : $P_{2392} = (21, 36, 1, 0)$ lies on line ℓ_2
 133 : $P_{2420} = (49, 36, 1, 0)$ lies on line ℓ_1
 134 : $P_{2443} = (8, 37, 1, 0)$ lies on line ℓ_1
 135 : $P_{2480} = (45, 37, 1, 0)$ lies on line ℓ_2
 136 : $P_{2503} = (4, 38, 1, 0)$ lies on line ℓ_2
 137 : $P_{2533} = (34, 38, 1, 0)$ lies on line ℓ_1
 138 : $P_{2590} = (27, 39, 1, 0)$ lies on line ℓ_1
 139 : $P_{2623} = (60, 39, 1, 0)$ lies on line ℓ_2
 140 : $P_{2645} = (18, 40, 1, 0)$ lies on line ℓ_2
 141 : $P_{2685} = (58, 40, 1, 0)$ lies on line ℓ_1
 142 : $P_{2694} = (3, 41, 1, 0)$ lies on line ℓ_1
 143 : $P_{2733} = (42, 41, 1, 0)$ lies on line ℓ_2
 144 : $P_{2758} = (3, 42, 1, 0)$ lies on line ℓ_2
 145 : $P_{2796} = (41, 42, 1, 0)$ lies on line ℓ_1
 146 : $P_{2835} = (16, 43, 1, 0)$ lies on line ℓ_1
 147 : $P_{2878} = (59, 43, 1, 0)$ lies on line ℓ_2
 148 : $P_{2911} = (28, 44, 1, 0)$ lies on line ℓ_1
 149 : $P_{2931} = (48, 44, 1, 0)$ lies on line ℓ_2
 150 : $P_{2955} = (8, 45, 1, 0)$ lies on line ℓ_2
 151 : $P_{2984} = (37, 45, 1, 0)$ lies on line ℓ_1
 152 : $P_{3026} = (15, 46, 1, 0)$ lies on line ℓ_1
 153 : $P_{3044} = (33, 46, 1, 0)$ lies on line ℓ_2
 154 : $P_{3100} = (25, 47, 1, 0)$ lies on line ℓ_2
 155 : $P_{3129} = (54, 47, 1, 0)$ lies on line ℓ_1
 156 : $P_{3167} = (28, 48, 1, 0)$ lies on line ℓ_2
 157 : $P_{3183} = (44, 48, 1, 0)$ lies on line ℓ_1
 158 : $P_{3224} = (21, 49, 1, 0)$ lies on line ℓ_1
 159 : $P_{3239} = (36, 49, 1, 0)$ lies on line ℓ_2
 160 : $P_{3280} = (13, 50, 1, 0)$ lies on line ℓ_2
 161 : $P_{3330} = (63, 50, 1, 0)$ lies on line ℓ_1

162 : $P_{3337} = (6, 51, 1, 0)$ lies on line ℓ_1
 163 : $P_{3384} = (53, 51, 1, 0)$ lies on line ℓ_2
 164 : $P_{3405} = (10, 52, 1, 0)$ lies on line ℓ_1
 165 : $P_{3457} = (62, 52, 1, 0)$ lies on line ℓ_2
 166 : $P_{3465} = (6, 53, 1, 0)$ lies on line ℓ_2
 167 : $P_{3510} = (51, 53, 1, 0)$ lies on line ℓ_1
 168 : $P_{3548} = (25, 54, 1, 0)$ lies on line ℓ_1
 169 : $P_{3570} = (47, 54, 1, 0)$ lies on line ℓ_2
 170 : $P_{3610} = (23, 55, 1, 0)$ lies on line ℓ_2
 171 : $P_{3619} = (32, 55, 1, 0)$ lies on line ℓ_1
 172 : $P_{3708} = (57, 56, 1, 0)$ lies on line ℓ_2
 173 : $P_{3771} = (56, 57, 1, 0)$ lies on line ℓ_1
 174 : $P_{3797} = (18, 58, 1, 0)$ lies on line ℓ_1
 175 : $P_{3819} = (40, 58, 1, 0)$ lies on line ℓ_2
 176 : $P_{3859} = (16, 59, 1, 0)$ lies on line ℓ_2
 177 : $P_{3886} = (43, 59, 1, 0)$ lies on line ℓ_1
 178 : $P_{3934} = (27, 60, 1, 0)$ lies on line ℓ_2
 179 : $P_{3946} = (39, 60, 1, 0)$ lies on line ℓ_1
 180 : $P_{4001} = (30, 61, 1, 0)$ lies on line ℓ_1
 181 : $P_{4006} = (35, 61, 1, 0)$ lies on line ℓ_2
 182 : $P_{4045} = (10, 62, 1, 0)$ lies on line ℓ_2
 183 : $P_{4087} = (52, 62, 1, 0)$ lies on line ℓ_1
 184 : $P_{4112} = (13, 63, 1, 0)$ lies on line ℓ_1
 185 : $P_{4149} = (50, 63, 1, 0)$ lies on line ℓ_2
 186 : $P_{7803} = (57, 56, 0, 1)$ lies on line ℓ_5
 187 : $P_{7866} = (56, 57, 0, 1)$ lies on line ℓ_6
 188 : $P_{8259} = (1, 0, 1, 1)$ lies on line ℓ_7
 189 : $P_{8385} = (0, 2, 1, 1)$ lies on line ℓ_3
 190 : $P_{8388} = (3, 2, 1, 1)$ lies on line ℓ_7
 191 : $P_{8449} = (0, 3, 1, 1)$ lies on line ℓ_3
 192 : $P_{8451} = (2, 3, 1, 1)$ lies on line ℓ_7
 193 : $P_{8513} = (0, 4, 1, 1)$ lies on line ℓ_3
 194 : $P_{8518} = (5, 4, 1, 1)$ lies on line ℓ_7
 195 : $P_{8577} = (0, 5, 1, 1)$ lies on line ℓ_3
 196 : $P_{8581} = (4, 5, 1, 1)$ lies on line ℓ_7
 197 : $P_{8641} = (0, 6, 1, 1)$ lies on line ℓ_3
 198 : $P_{8648} = (7, 6, 1, 1)$ lies on line ℓ_7
 199 : $P_{8705} = (0, 7, 1, 1)$ lies on line ℓ_3
 200 : $P_{8711} = (6, 7, 1, 1)$ lies on line ℓ_7
 201 : $P_{8769} = (0, 8, 1, 1)$ lies on line ℓ_3
 202 : $P_{8778} = (9, 8, 1, 1)$ lies on line ℓ_7
 203 : $P_{8833} = (0, 9, 1, 1)$ lies on line ℓ_3
 204 : $P_{8841} = (8, 9, 1, 1)$ lies on line ℓ_7
 205 : $P_{8897} = (0, 10, 1, 1)$ lies on line ℓ_3
 206 : $P_{8908} = (11, 10, 1, 1)$ lies on line ℓ_7
 207 : $P_{8961} = (0, 11, 1, 1)$ lies on line ℓ_3
 208 : $P_{8971} = (10, 11, 1, 1)$ lies on line ℓ_7
 209 : $P_{9025} = (0, 12, 1, 1)$ lies on line ℓ_3
 210 : $P_{9038} = (13, 12, 1, 1)$ lies on line ℓ_7
 211 : $P_{9089} = (0, 13, 1, 1)$ lies on line ℓ_3
 212 : $P_{9101} = (12, 13, 1, 1)$ lies on line ℓ_7
 213 : $P_{9153} = (0, 14, 1, 1)$ lies on line ℓ_3
 214 : $P_{9168} = (15, 14, 1, 1)$ lies on line ℓ_7
 215 : $P_{9217} = (0, 15, 1, 1)$ lies on line ℓ_3

216 : $P_{9231} = (14, 15, 1, 1)$ lies on line ℓ_7
 217 : $P_{9281} = (0, 16, 1, 1)$ lies on line ℓ_3
 218 : $P_{9298} = (17, 16, 1, 1)$ lies on line ℓ_7
 219 : $P_{9345} = (0, 17, 1, 1)$ lies on line ℓ_3
 220 : $P_{9361} = (16, 17, 1, 1)$ lies on line ℓ_7
 221 : $P_{9409} = (0, 18, 1, 1)$ lies on line ℓ_3
 222 : $P_{9428} = (19, 18, 1, 1)$ lies on line ℓ_7
 223 : $P_{9473} = (0, 19, 1, 1)$ lies on line ℓ_3
 224 : $P_{9491} = (18, 19, 1, 1)$ lies on line ℓ_7
 225 : $P_{9537} = (0, 20, 1, 1)$ lies on line ℓ_3
 226 : $P_{9558} = (21, 20, 1, 1)$ lies on line ℓ_7
 227 : $P_{9601} = (0, 21, 1, 1)$ lies on line ℓ_3
 228 : $P_{9621} = (20, 21, 1, 1)$ lies on line ℓ_7
 229 : $P_{9665} = (0, 22, 1, 1)$ lies on line ℓ_3
 230 : $P_{9688} = (23, 22, 1, 1)$ lies on line ℓ_7
 231 : $P_{9729} = (0, 23, 1, 1)$ lies on line ℓ_3
 232 : $P_{9751} = (22, 23, 1, 1)$ lies on line ℓ_7
 233 : $P_{9793} = (0, 24, 1, 1)$ lies on line ℓ_3
 234 : $P_{9818} = (25, 24, 1, 1)$ lies on line ℓ_7
 235 : $P_{9857} = (0, 25, 1, 1)$ lies on line ℓ_3
 236 : $P_{9881} = (24, 25, 1, 1)$ lies on line ℓ_7
 237 : $P_{9921} = (0, 26, 1, 1)$ lies on line ℓ_3
 238 : $P_{9948} = (27, 26, 1, 1)$ lies on line ℓ_7
 239 : $P_{9985} = (0, 27, 1, 1)$ lies on line ℓ_3
 240 : $P_{10011} = (26, 27, 1, 1)$ lies on line ℓ_7
 241 : $P_{10049} = (0, 28, 1, 1)$ lies on line ℓ_3
 242 : $P_{10078} = (29, 28, 1, 1)$ lies on line ℓ_7
 243 : $P_{10113} = (0, 29, 1, 1)$ lies on line ℓ_3
 244 : $P_{10141} = (28, 29, 1, 1)$ lies on line ℓ_7
 245 : $P_{10177} = (0, 30, 1, 1)$ lies on line ℓ_3
 246 : $P_{10208} = (31, 30, 1, 1)$ lies on line ℓ_7
 247 : $P_{10241} = (0, 31, 1, 1)$ lies on line ℓ_3
 248 : $P_{10271} = (30, 31, 1, 1)$ lies on line ℓ_7
 249 : $P_{10305} = (0, 32, 1, 1)$ lies on line ℓ_3
 250 : $P_{10338} = (33, 32, 1, 1)$ lies on line ℓ_7
 251 : $P_{10369} = (0, 33, 1, 1)$ lies on line ℓ_3
 252 : $P_{10401} = (32, 33, 1, 1)$ lies on line ℓ_7
 253 : $P_{10433} = (0, 34, 1, 1)$ lies on line ℓ_3
 254 : $P_{10468} = (35, 34, 1, 1)$ lies on line ℓ_7
 255 : $P_{10497} = (0, 35, 1, 1)$ lies on line ℓ_3
 256 : $P_{10531} = (34, 35, 1, 1)$ lies on line ℓ_7
 257 : $P_{10561} = (0, 36, 1, 1)$ lies on line ℓ_3
 258 : $P_{10598} = (37, 36, 1, 1)$ lies on line ℓ_7
 259 : $P_{10625} = (0, 37, 1, 1)$ lies on line ℓ_3
 260 : $P_{10661} = (36, 37, 1, 1)$ lies on line ℓ_7
 261 : $P_{10689} = (0, 38, 1, 1)$ lies on line ℓ_3
 262 : $P_{10728} = (39, 38, 1, 1)$ lies on line ℓ_7
 263 : $P_{10753} = (0, 39, 1, 1)$ lies on line ℓ_3
 264 : $P_{10791} = (38, 39, 1, 1)$ lies on line ℓ_7
 265 : $P_{10817} = (0, 40, 1, 1)$ lies on line ℓ_3
 266 : $P_{10858} = (41, 40, 1, 1)$ lies on line ℓ_7
 267 : $P_{10881} = (0, 41, 1, 1)$ lies on line ℓ_3
 268 : $P_{10921} = (40, 41, 1, 1)$ lies on line ℓ_7
 269 : $P_{10945} = (0, 42, 1, 1)$ lies on line ℓ_3

270 : $P_{10988} = (43, 42, 1, 1)$ lies on line ℓ_7
 271 : $P_{11009} = (0, 43, 1, 1)$ lies on line ℓ_3
 272 : $P_{11051} = (42, 43, 1, 1)$ lies on line ℓ_7
 273 : $P_{11073} = (0, 44, 1, 1)$ lies on line ℓ_3
 274 : $P_{11118} = (45, 44, 1, 1)$ lies on line ℓ_7
 275 : $P_{11137} = (0, 45, 1, 1)$ lies on line ℓ_3
 276 : $P_{11181} = (44, 45, 1, 1)$ lies on line ℓ_7
 277 : $P_{11201} = (0, 46, 1, 1)$ lies on line ℓ_3
 278 : $P_{11248} = (47, 46, 1, 1)$ lies on line ℓ_7
 279 : $P_{11265} = (0, 47, 1, 1)$ lies on line ℓ_3
 280 : $P_{11311} = (46, 47, 1, 1)$ lies on line ℓ_7
 281 : $P_{11329} = (0, 48, 1, 1)$ lies on line ℓ_3
 282 : $P_{11378} = (49, 48, 1, 1)$ lies on line ℓ_7
 283 : $P_{11393} = (0, 49, 1, 1)$ lies on line ℓ_3
 284 : $P_{11441} = (48, 49, 1, 1)$ lies on line ℓ_7
 285 : $P_{11457} = (0, 50, 1, 1)$ lies on line ℓ_3
 286 : $P_{11508} = (51, 50, 1, 1)$ lies on line ℓ_7
 287 : $P_{11521} = (0, 51, 1, 1)$ lies on line ℓ_3
 288 : $P_{11571} = (50, 51, 1, 1)$ lies on line ℓ_7
 289 : $P_{11585} = (0, 52, 1, 1)$ lies on line ℓ_3
 290 : $P_{11638} = (53, 52, 1, 1)$ lies on line ℓ_7
 291 : $P_{11649} = (0, 53, 1, 1)$ lies on line ℓ_3
 292 : $P_{11701} = (52, 53, 1, 1)$ lies on line ℓ_7
 293 : $P_{11713} = (0, 54, 1, 1)$ lies on line ℓ_3
 294 : $P_{11768} = (55, 54, 1, 1)$ lies on line ℓ_7
 295 : $P_{11777} = (0, 55, 1, 1)$ lies on line ℓ_3
 296 : $P_{11831} = (54, 55, 1, 1)$ lies on line ℓ_7
 297 : $P_{11969} = (0, 58, 1, 1)$ lies on line ℓ_3
 298 : $P_{12028} = (59, 58, 1, 1)$ lies on line ℓ_7
 299 : $P_{12033} = (0, 59, 1, 1)$ lies on line ℓ_3
 300 : $P_{12091} = (58, 59, 1, 1)$ lies on line ℓ_7
 301 : $P_{12097} = (0, 60, 1, 1)$ lies on line ℓ_3
 302 : $P_{12158} = (61, 60, 1, 1)$ lies on line ℓ_7
 303 : $P_{12161} = (0, 61, 1, 1)$ lies on line ℓ_3
 304 : $P_{12221} = (60, 61, 1, 1)$ lies on line ℓ_7
 305 : $P_{12225} = (0, 62, 1, 1)$ lies on line ℓ_3
 306 : $P_{12288} = (63, 62, 1, 1)$ lies on line ℓ_7
 307 : $P_{12289} = (0, 63, 1, 1)$ lies on line ℓ_3
 308 : $P_{12351} = (62, 63, 1, 1)$ lies on line ℓ_7
 309 : $P_{12353} = (0, 0, 2, 1)$ lies on line ℓ_4
 310 : $P_{13380} = (3, 16, 2, 1)$ lies on line ℓ_8
 311 : $P_{13508} = (3, 18, 2, 1)$ lies on line ℓ_9
 312 : $P_{15994} = (57, 56, 2, 1)$ lies on line ℓ_5
 313 : $P_{16057} = (56, 57, 2, 1)$ lies on line ℓ_6
 314 : $P_{16449} = (0, 0, 3, 1)$ lies on line ℓ_4
 315 : $P_{19011} = (2, 40, 3, 1)$ lies on line ℓ_8
 316 : $P_{19203} = (2, 43, 3, 1)$ lies on line ℓ_9
 317 : $P_{20090} = (57, 56, 3, 1)$ lies on line ℓ_5
 318 : $P_{20153} = (56, 57, 3, 1)$ lies on line ℓ_6
 319 : $P_{20545} = (0, 0, 4, 1)$ lies on line ℓ_4
 320 : $P_{22790} = (5, 35, 4, 1)$ lies on line ℓ_8
 321 : $P_{23046} = (5, 39, 4, 1)$ lies on line ℓ_9
 322 : $P_{24186} = (57, 56, 4, 1)$ lies on line ℓ_5
 323 : $P_{24249} = (56, 57, 4, 1)$ lies on line ℓ_6

324 : $P_{24641} = (0, 0, 5, 1)$ lies on line ℓ_4
325 : $P_{26373} = (4, 27, 5, 1)$ lies on line ℓ_8
326 : $P_{26565} = (4, 30, 5, 1)$ lies on line ℓ_9
327 : $P_{28282} = (57, 56, 5, 1)$ lies on line ℓ_5
328 : $P_{28345} = (56, 57, 5, 1)$ lies on line ℓ_6
329 : $P_{28737} = (0, 0, 6, 1)$ lies on line ℓ_4
330 : $P_{31944} = (7, 50, 6, 1)$ lies on line ℓ_8
331 : $P_{32072} = (7, 52, 6, 1)$ lies on line ℓ_9
332 : $P_{32378} = (57, 56, 6, 1)$ lies on line ℓ_5
333 : $P_{32441} = (56, 57, 6, 1)$ lies on line ℓ_6
334 : $P_{32833} = (0, 0, 7, 1)$ lies on line ℓ_4
335 : $P_{33479} = (6, 10, 7, 1)$ lies on line ℓ_8
336 : $P_{33671} = (6, 13, 7, 1)$ lies on line ℓ_9
337 : $P_{36474} = (57, 56, 7, 1)$ lies on line ℓ_5
338 : $P_{36537} = (56, 57, 7, 1)$ lies on line ℓ_6
339 : $P_{36929} = (0, 0, 8, 1)$ lies on line ℓ_4
340 : $P_{39242} = (9, 36, 8, 1)$ lies on line ℓ_8
341 : $P_{39754} = (9, 44, 8, 1)$ lies on line ℓ_9
342 : $P_{40570} = (57, 56, 8, 1)$ lies on line ℓ_5
343 : $P_{40633} = (56, 57, 8, 1)$ lies on line ℓ_6
344 : $P_{41025} = (0, 0, 9, 1)$ lies on line ℓ_4
345 : $P_{42377} = (8, 21, 9, 1)$ lies on line ℓ_9
346 : $P_{42825} = (8, 28, 9, 1)$ lies on line ℓ_8
347 : $P_{44666} = (57, 56, 9, 1)$ lies on line ℓ_5
348 : $P_{44729} = (56, 57, 9, 1)$ lies on line ℓ_6
349 : $P_{45121} = (0, 0, 10, 1)$ lies on line ℓ_4
350 : $P_{48524} = (11, 53, 10, 1)$ lies on line ℓ_8
351 : $P_{48762} = (57, 56, 10, 1)$ lies on line ℓ_5
352 : $P_{48825} = (56, 57, 10, 1)$ lies on line ℓ_6
353 : $P_{49164} = (11, 63, 10, 1)$ lies on line ℓ_9
354 : $P_{49217} = (0, 0, 11, 1)$ lies on line ℓ_4
355 : $P_{49611} = (10, 6, 11, 1)$ lies on line ℓ_9
356 : $P_{50059} = (10, 13, 11, 1)$ lies on line ℓ_8
357 : $P_{52858} = (57, 56, 11, 1)$ lies on line ℓ_5
358 : $P_{52921} = (56, 57, 11, 1)$ lies on line ℓ_6
359 : $P_{53313} = (0, 0, 12, 1)$ lies on line ℓ_4
360 : $P_{53710} = (13, 6, 12, 1)$ lies on line ℓ_8
361 : $P_{53966} = (13, 10, 12, 1)$ lies on line ℓ_9
362 : $P_{56954} = (57, 56, 12, 1)$ lies on line ℓ_5
363 : $P_{57017} = (56, 57, 12, 1)$ lies on line ℓ_6
364 : $P_{57409} = (0, 0, 13, 1)$ lies on line ℓ_4
365 : $P_{60685} = (12, 51, 13, 1)$ lies on line ℓ_9
366 : $P_{61050} = (57, 56, 13, 1)$ lies on line ℓ_5
367 : $P_{61113} = (56, 57, 13, 1)$ lies on line ℓ_6
368 : $P_{61389} = (12, 62, 13, 1)$ lies on line ℓ_8
369 : $P_{61505} = (0, 0, 14, 1)$ lies on line ℓ_4
370 : $P_{62992} = (15, 23, 14, 1)$ lies on line ℓ_8
371 : $P_{63120} = (15, 25, 14, 1)$ lies on line ℓ_9
372 : $P_{65146} = (57, 56, 14, 1)$ lies on line ℓ_5
373 : $P_{65209} = (56, 57, 14, 1)$ lies on line ℓ_6
374 : $P_{65601} = (0, 0, 15, 1)$ lies on line ℓ_4
375 : $P_{67663} = (14, 32, 15, 1)$ lies on line ℓ_9
376 : $P_{68623} = (14, 47, 15, 1)$ lies on line ℓ_8
377 : $P_{69242} = (57, 56, 15, 1)$ lies on line ℓ_5
378 : $P_{69305} = (56, 57, 15, 1)$ lies on line ℓ_6
379 : $P_{69697} = (0, 0, 16, 1)$ lies on line ℓ_4
380 : $P_{72402} = (17, 42, 16, 1)$ lies on line ℓ_8
381 : $P_{73338} = (57, 56, 16, 1)$ lies on line ℓ_5
382 : $P_{73401} = (56, 57, 16, 1)$ lies on line ℓ_6
383 : $P_{73426} = (17, 58, 16, 1)$ lies on line ℓ_9
384 : $P_{73793} = (0, 0, 17, 1)$ lies on line ℓ_4
385 : $P_{74001} = (16, 3, 17, 1)$ lies on line ℓ_9
386 : $P_{74961} = (16, 18, 17, 1)$ lies on line ℓ_8
387 : $P_{77434} = (57, 56, 17, 1)$ lies on line ℓ_5
388 : $P_{77497} = (56, 57, 17, 1)$ lies on line ℓ_6
389 : $P_{77889} = (0, 0, 18, 1)$ lies on line ℓ_4
390 : $P_{80532} = (19, 41, 18, 1)$ lies on line ℓ_9
391 : $P_{81530} = (57, 56, 18, 1)$ lies on line ℓ_5
392 : $P_{81593} = (56, 57, 18, 1)$ lies on line ℓ_6
393 : $P_{81684} = (19, 59, 18, 1)$ lies on line ℓ_8
394 : $P_{81985} = (0, 0, 19, 1)$ lies on line ℓ_4
395 : $P_{82195} = (18, 3, 19, 1)$ lies on line ℓ_8
396 : $P_{83027} = (18, 16, 19, 1)$ lies on line ℓ_9
397 : $P_{85626} = (57, 56, 19, 1)$ lies on line ℓ_5
398 : $P_{85689} = (56, 57, 19, 1)$ lies on line ℓ_6
399 : $P_{86081} = (0, 0, 20, 1)$ lies on line ℓ_4
400 : $P_{86614} = (21, 8, 20, 1)$ lies on line ℓ_8
401 : $P_{87894} = (21, 28, 20, 1)$ lies on line ℓ_9
402 : $P_{89722} = (57, 56, 20, 1)$ lies on line ℓ_5
403 : $P_{89785} = (56, 57, 20, 1)$ lies on line ℓ_6
404 : $P_{90177} = (0, 0, 21, 1)$ lies on line ℓ_4
405 : $P_{92565} = (20, 37, 21, 1)$ lies on line ℓ_9
406 : $P_{93269} = (20, 48, 21, 1)$ lies on line ℓ_8
407 : $P_{93818} = (57, 56, 21, 1)$ lies on line ℓ_5
408 : $P_{93881} = (56, 57, 21, 1)$ lies on line ℓ_6
409 : $P_{94273} = (0, 0, 22, 1)$ lies on line ℓ_4
410 : $P_{95256} = (23, 15, 22, 1)$ lies on line ℓ_9
411 : $P_{95896} = (23, 25, 22, 1)$ lies on line ℓ_8
412 : $P_{97914} = (57, 56, 22, 1)$ lies on line ℓ_5
413 : $P_{97977} = (56, 57, 22, 1)$ lies on line ℓ_6
414 : $P_{98369} = (0, 0, 23, 1)$ lies on line ℓ_4
415 : $P_{100503} = (22, 33, 23, 1)$ lies on line ℓ_8
416 : $P_{101847} = (22, 54, 23, 1)$ lies on line ℓ_9
417 : $P_{102010} = (57, 56, 23, 1)$ lies on line ℓ_5
418 : $P_{102073} = (56, 57, 23, 1)$ lies on line ℓ_6
419 : $P_{102465} = (0, 0, 24, 1)$ lies on line ℓ_4
420 : $P_{103450} = (25, 15, 24, 1)$ lies on line ℓ_8
421 : $P_{103962} = (25, 23, 24, 1)$ lies on line ℓ_9
422 : $P_{106106} = (57, 56, 24, 1)$ lies on line ℓ_5
423 : $P_{106169} = (56, 57, 24, 1)$ lies on line ℓ_6
424 : $P_{106561} = (0, 0, 25, 1)$ lies on line ℓ_4
425 : $P_{109529} = (24, 46, 25, 1)$ lies on line ℓ_9
426 : $P_{110105} = (24, 55, 25, 1)$ lies on line ℓ_8
427 : $P_{110202} = (57, 56, 25, 1)$ lies on line ℓ_5
428 : $P_{110265} = (56, 57, 25, 1)$ lies on line ℓ_6
429 : $P_{110657} = (0, 0, 26, 1)$ lies on line ℓ_4
430 : $P_{110940} = (27, 4, 26, 1)$ lies on line ℓ_9
431 : $P_{112604} = (27, 30, 26, 1)$ lies on line ℓ_8

432 : $P_{114298} = (57, 56, 26, 1)$ lies on line ℓ_5
 433 : $P_{114361} = (56, 57, 26, 1)$ lies on line ℓ_6
 434 : $P_{114753} = (0, 0, 27, 1)$ lies on line ℓ_4
 435 : $P_{117211} = (26, 38, 27, 1)$ lies on line ℓ_8
 436 : $P_{118394} = (57, 56, 27, 1)$ lies on line ℓ_5
 437 : $P_{118457} = (56, 57, 27, 1)$ lies on line ℓ_6
 438 : $P_{118683} = (26, 61, 27, 1)$ lies on line ℓ_9
 439 : $P_{118849} = (0, 0, 28, 1)$ lies on line ℓ_4
 440 : $P_{121758} = (29, 45, 28, 1)$ lies on line ℓ_8
 441 : $P_{122014} = (29, 49, 28, 1)$ lies on line ℓ_9
 442 : $P_{122490} = (57, 56, 28, 1)$ lies on line ℓ_5
 443 : $P_{122553} = (56, 57, 28, 1)$ lies on line ℓ_6
 444 : $P_{122945} = (0, 0, 29, 1)$ lies on line ℓ_4
 445 : $P_{123485} = (28, 8, 29, 1)$ lies on line ℓ_9
 446 : $P_{124317} = (28, 21, 29, 1)$ lies on line ℓ_8
 447 : $P_{126586} = (57, 56, 29, 1)$ lies on line ℓ_5
 448 : $P_{126649} = (56, 57, 29, 1)$ lies on line ℓ_6
 449 : $P_{127041} = (0, 0, 30, 1)$ lies on line ℓ_4
 450 : $P_{129248} = (31, 34, 30, 1)$ lies on line ℓ_9
 451 : $P_{130682} = (57, 56, 30, 1)$ lies on line ℓ_5
 452 : $P_{130745} = (56, 57, 30, 1)$ lies on line ℓ_6
 453 : $P_{130912} = (31, 60, 30, 1)$ lies on line ℓ_8
 454 : $P_{131137} = (0, 0, 31, 1)$ lies on line ℓ_4
 455 : $P_{131423} = (30, 4, 31, 1)$ lies on line ℓ_8
 456 : $P_{132895} = (30, 27, 31, 1)$ lies on line ℓ_9
 457 : $P_{134778} = (57, 56, 31, 1)$ lies on line ℓ_5
 458 : $P_{134841} = (56, 57, 31, 1)$ lies on line ℓ_6
 459 : $P_{135233} = (0, 0, 32, 1)$ lies on line ℓ_4
 460 : $P_{136674} = (33, 22, 32, 1)$ lies on line ℓ_9
 461 : $P_{138722} = (33, 54, 32, 1)$ lies on line ℓ_8
 462 : $P_{138874} = (57, 56, 32, 1)$ lies on line ℓ_5
 463 : $P_{138937} = (56, 57, 32, 1)$ lies on line ℓ_6
 464 : $P_{139329} = (0, 0, 33, 1)$ lies on line ℓ_4
 465 : $P_{140257} = (32, 14, 33, 1)$ lies on line ℓ_8
 466 : $P_{142369} = (32, 47, 33, 1)$ lies on line ℓ_9
 467 : $P_{142970} = (57, 56, 33, 1)$ lies on line ℓ_5
 468 : $P_{143033} = (56, 57, 33, 1)$ lies on line ℓ_6
 469 : $P_{143425} = (0, 0, 34, 1)$ lies on line ℓ_4
 470 : $P_{143780} = (35, 5, 34, 1)$ lies on line ℓ_9
 471 : $P_{145956} = (35, 39, 34, 1)$ lies on line ℓ_8
 472 : $P_{147066} = (57, 56, 34, 1)$ lies on line ℓ_5
 473 : $P_{147129} = (56, 57, 34, 1)$ lies on line ℓ_6
 474 : $P_{147521} = (0, 0, 35, 1)$ lies on line ℓ_4
 475 : $P_{149539} = (34, 31, 35, 1)$ lies on line ℓ_8
 476 : $P_{151162} = (57, 56, 35, 1)$ lies on line ℓ_5
 477 : $P_{151225} = (56, 57, 35, 1)$ lies on line ℓ_6
 478 : $P_{151395} = (34, 60, 35, 1)$ lies on line ℓ_9
 479 : $P_{151617} = (0, 0, 36, 1)$ lies on line ℓ_4
 480 : $P_{152934} = (37, 20, 36, 1)$ lies on line ℓ_8
 481 : $P_{154726} = (37, 48, 36, 1)$ lies on line ℓ_9
 482 : $P_{155258} = (57, 56, 36, 1)$ lies on line ℓ_5
 483 : $P_{155321} = (56, 57, 36, 1)$ lies on line ℓ_6
 484 : $P_{155713} = (0, 0, 37, 1)$ lies on line ℓ_4
 485 : $P_{156325} = (36, 9, 37, 1)$ lies on line ℓ_9
 486 : $P_{158565} = (36, 44, 37, 1)$ lies on line ℓ_8
 487 : $P_{159354} = (57, 56, 37, 1)$ lies on line ℓ_5
 488 : $P_{159417} = (56, 57, 37, 1)$ lies on line ℓ_6
 489 : $P_{159809} = (0, 0, 38, 1)$ lies on line ℓ_4
 490 : $P_{160168} = (39, 5, 38, 1)$ lies on line ℓ_8
 491 : $P_{162088} = (39, 35, 38, 1)$ lies on line ℓ_9
 492 : $P_{163450} = (57, 56, 38, 1)$ lies on line ℓ_5
 493 : $P_{163513} = (56, 57, 38, 1)$ lies on line ℓ_6
 494 : $P_{163905} = (0, 0, 39, 1)$ lies on line ℓ_4
 495 : $P_{165607} = (38, 26, 39, 1)$ lies on line ℓ_9
 496 : $P_{167546} = (57, 56, 39, 1)$ lies on line ℓ_5
 497 : $P_{167609} = (56, 57, 39, 1)$ lies on line ℓ_6
 498 : $P_{167847} = (38, 61, 39, 1)$ lies on line ℓ_8
 499 : $P_{168001} = (0, 0, 40, 1)$ lies on line ℓ_4
 500 : $P_{169258} = (41, 19, 40, 1)$ lies on line ℓ_8
 501 : $P_{171642} = (57, 56, 40, 1)$ lies on line ℓ_5
 502 : $P_{171705} = (56, 57, 40, 1)$ lies on line ℓ_6
 503 : $P_{171818} = (41, 59, 40, 1)$ lies on line ℓ_9
 504 : $P_{172097} = (0, 0, 41, 1)$ lies on line ℓ_4
 505 : $P_{172265} = (40, 2, 41, 1)$ lies on line ℓ_9
 506 : $P_{174889} = (40, 43, 41, 1)$ lies on line ℓ_8
 507 : $P_{175738} = (57, 56, 41, 1)$ lies on line ℓ_5
 508 : $P_{175801} = (56, 57, 41, 1)$ lies on line ℓ_6
 509 : $P_{176193} = (0, 0, 42, 1)$ lies on line ℓ_4
 510 : $P_{176364} = (43, 2, 42, 1)$ lies on line ℓ_8
 511 : $P_{178796} = (43, 40, 42, 1)$ lies on line ℓ_9
 512 : $P_{179834} = (57, 56, 42, 1)$ lies on line ℓ_5
 513 : $P_{179897} = (56, 57, 42, 1)$ lies on line ℓ_6
 514 : $P_{180289} = (0, 0, 43, 1)$ lies on line ℓ_4
 515 : $P_{181419} = (42, 17, 43, 1)$ lies on line ℓ_9
 516 : $P_{183930} = (57, 56, 43, 1)$ lies on line ℓ_5
 517 : $P_{183993} = (56, 57, 43, 1)$ lies on line ℓ_6
 518 : $P_{184043} = (42, 58, 43, 1)$ lies on line ℓ_8
 519 : $P_{184385} = (0, 0, 44, 1)$ lies on line ℓ_4
 520 : $P_{186286} = (45, 29, 44, 1)$ lies on line ℓ_9
 521 : $P_{187566} = (45, 49, 44, 1)$ lies on line ℓ_8
 522 : $P_{188026} = (57, 56, 44, 1)$ lies on line ℓ_5
 523 : $P_{188089} = (56, 57, 44, 1)$ lies on line ℓ_6
 524 : $P_{188481} = (0, 0, 45, 1)$ lies on line ℓ_4
 525 : $P_{189101} = (44, 9, 45, 1)$ lies on line ℓ_8
 526 : $P_{190829} = (44, 36, 45, 1)$ lies on line ℓ_9
 527 : $P_{192122} = (57, 56, 45, 1)$ lies on line ℓ_5
 528 : $P_{192185} = (56, 57, 45, 1)$ lies on line ℓ_6
 529 : $P_{192577} = (0, 0, 46, 1)$ lies on line ℓ_4
 530 : $P_{193520} = (47, 14, 46, 1)$ lies on line ℓ_9
 531 : $P_{194672} = (47, 32, 46, 1)$ lies on line ℓ_8
 532 : $P_{196218} = (57, 56, 46, 1)$ lies on line ℓ_5
 533 : $P_{196281} = (56, 57, 46, 1)$ lies on line ℓ_6
 534 : $P_{196673} = (0, 0, 47, 1)$ lies on line ℓ_4
 535 : $P_{198255} = (46, 24, 47, 1)$ lies on line ℓ_8
 536 : $P_{200239} = (46, 55, 47, 1)$ lies on line ℓ_9
 537 : $P_{200314} = (57, 56, 47, 1)$ lies on line ℓ_5
 538 : $P_{200377} = (56, 57, 47, 1)$ lies on line ℓ_6
 539 : $P_{200769} = (0, 0, 48, 1)$ lies on line ℓ_4

540 : $P_{202674} = (49, 29, 48, 1)$ lies on line ℓ_8	578 : $P_{233145} = (56, 57, 55, 1)$ lies on line ℓ_6
541 : $P_{203698} = (49, 45, 48, 1)$ lies on line ℓ_9	579 : $P_{233537} = (0, 0, 56, 1)$ lies on line ℓ_4
542 : $P_{204410} = (57, 56, 48, 1)$ lies on line ℓ_5	580 : $P_{233594} = (57, 0, 56, 1)$ lies on line ℓ_9
543 : $P_{204473} = (56, 57, 48, 1)$ lies on line ℓ_6	581 : $P_{237241} = (56, 57, 56, 1)$ lies on line ℓ_6
544 : $P_{204865} = (0, 0, 49, 1)$ lies on line ℓ_4	582 : $P_{237633} = (0, 0, 57, 1)$ lies on line ℓ_4
545 : $P_{206193} = (48, 20, 49, 1)$ lies on line ℓ_9	583 : $P_{237689} = (56, 0, 57, 1)$ lies on line ℓ_8
546 : $P_{207281} = (48, 37, 49, 1)$ lies on line ℓ_8	584 : $P_{241274} = (57, 56, 57, 1)$ lies on line ℓ_5
547 : $P_{208506} = (57, 56, 49, 1)$ lies on line ℓ_5	585 : $P_{241729} = (0, 0, 58, 1)$ lies on line ℓ_4
548 : $P_{208569} = (56, 57, 49, 1)$ lies on line ℓ_6	586 : $P_{243004} = (59, 19, 58, 1)$ lies on line ℓ_9
549 : $P_{208961} = (0, 0, 50, 1)$ lies on line ℓ_4	587 : $P_{244412} = (59, 41, 58, 1)$ lies on line ℓ_8
550 : $P_{209780} = (51, 12, 50, 1)$ lies on line ℓ_8	588 : $P_{245370} = (57, 56, 58, 1)$ lies on line ℓ_5
551 : $P_{212602} = (57, 56, 50, 1)$ lies on line ℓ_5	589 : $P_{245433} = (56, 57, 58, 1)$ lies on line ℓ_6
552 : $P_{212665} = (56, 57, 50, 1)$ lies on line ℓ_6	590 : $P_{245825} = (0, 0, 59, 1)$ lies on line ℓ_4
553 : $P_{212980} = (51, 62, 50, 1)$ lies on line ℓ_9	591 : $P_{246971} = (58, 17, 59, 1)$ lies on line ℓ_8
554 : $P_{213057} = (0, 0, 51, 1)$ lies on line ℓ_4	592 : $P_{248571} = (58, 42, 59, 1)$ lies on line ℓ_9
555 : $P_{213555} = (50, 7, 51, 1)$ lies on line ℓ_9	593 : $P_{249466} = (57, 56, 59, 1)$ lies on line ℓ_5
556 : $P_{216435} = (50, 52, 51, 1)$ lies on line ℓ_8	594 : $P_{249529} = (56, 57, 59, 1)$ lies on line ℓ_6
557 : $P_{216698} = (57, 56, 51, 1)$ lies on line ℓ_5	595 : $P_{249921} = (0, 0, 60, 1)$ lies on line ℓ_4
558 : $P_{216761} = (56, 57, 51, 1)$ lies on line ℓ_6	596 : $P_{251646} = (61, 26, 60, 1)$ lies on line ℓ_8
559 : $P_{217153} = (0, 0, 52, 1)$ lies on line ℓ_4	597 : $P_{252414} = (61, 38, 60, 1)$ lies on line ℓ_9
560 : $P_{217910} = (53, 11, 52, 1)$ lies on line ℓ_9	598 : $P_{253562} = (57, 56, 60, 1)$ lies on line ℓ_5
561 : $P_{220794} = (57, 56, 52, 1)$ lies on line ℓ_5	599 : $P_{253625} = (56, 57, 60, 1)$ lies on line ℓ_6
562 : $P_{220857} = (56, 57, 52, 1)$ lies on line ℓ_6	600 : $P_{254017} = (0, 0, 61, 1)$ lies on line ℓ_4
563 : $P_{221238} = (53, 63, 52, 1)$ lies on line ℓ_8	601 : $P_{256061} = (60, 31, 61, 1)$ lies on line ℓ_9
564 : $P_{221249} = (0, 0, 53, 1)$ lies on line ℓ_4	602 : $P_{256253} = (60, 34, 61, 1)$ lies on line ℓ_8
565 : $P_{221749} = (52, 7, 53, 1)$ lies on line ℓ_8	603 : $P_{257658} = (57, 56, 61, 1)$ lies on line ℓ_5
566 : $P_{224501} = (52, 50, 53, 1)$ lies on line ℓ_9	604 : $P_{257721} = (56, 57, 61, 1)$ lies on line ℓ_6
567 : $P_{224890} = (57, 56, 53, 1)$ lies on line ℓ_5	605 : $P_{258113} = (0, 0, 62, 1)$ lies on line ℓ_4
568 : $P_{224953} = (56, 57, 53, 1)$ lies on line ℓ_6	606 : $P_{258880} = (63, 11, 62, 1)$ lies on line ℓ_8
569 : $P_{225345} = (0, 0, 54, 1)$ lies on line ℓ_4	607 : $P_{261568} = (63, 53, 62, 1)$ lies on line ℓ_9
570 : $P_{226936} = (55, 24, 54, 1)$ lies on line ℓ_9	608 : $P_{261754} = (57, 56, 62, 1)$ lies on line ℓ_5
571 : $P_{228344} = (55, 46, 54, 1)$ lies on line ℓ_8	609 : $P_{261817} = (56, 57, 62, 1)$ lies on line ℓ_6
572 : $P_{228986} = (57, 56, 54, 1)$ lies on line ℓ_5	610 : $P_{262209} = (0, 0, 63, 1)$ lies on line ℓ_4
573 : $P_{229049} = (56, 57, 54, 1)$ lies on line ℓ_6	611 : $P_{263039} = (62, 12, 63, 1)$ lies on line ℓ_9
574 : $P_{229441} = (0, 0, 55, 1)$ lies on line ℓ_4	612 : $P_{265535} = (62, 51, 63, 1)$ lies on line ℓ_8
575 : $P_{230903} = (54, 22, 55, 1)$ lies on line ℓ_8	613 : $P_{265850} = (57, 56, 63, 1)$ lies on line ℓ_5
576 : $P_{231607} = (54, 33, 55, 1)$ lies on line ℓ_9	614 : $P_{265913} = (56, 57, 63, 1)$ lies on line ℓ_6
577 : $P_{233082} = (57, 56, 55, 1)$ lies on line ℓ_5	

The single points on the surface are:

Points on surface but on no line

The surface has 3722 points not on any line:
Too many to print.

Line Intersection Graph

	0	1	2	3	4	5	6	7	8	9
0	0	1	1	1	0	0	0	1	0	0
1	1	0	1	0	1	1	1	0	1	0
2	1	1	0	0	1	1	1	0	0	1
3	1	0	0	0	1	0	0	1	1	1
4	0	1	1	1	0	1	1	0	0	0
5	0	1	1	0	1	0	1	1	1	0
6	0	1	1	0	1	1	0	1	0	1
7	1	0	0	1	0	1	1	0	0	0
8	0	1	0	1	0	1	0	0	0	1
9	0	0	1	1	0	0	1	0	1	0

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_7
in point	P_{61}	P_{60}	P_1	P_5

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_4	ℓ_5	ℓ_6	ℓ_8
in point	P_{61}	P_2	P_2	P_2	P_2	P_{3652}

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_4	ℓ_5	ℓ_6	ℓ_9
in point	P_{60}	P_2	P_2	P_2	P_2	P_{3716}

Line 3 intersects

Line	ℓ_0	ℓ_4	ℓ_7	ℓ_8	ℓ_9
in point	P_1	P_{8258}	P_{8322}	P_{11905}	P_{11841}

Line 4 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_5	ℓ_6
in point	P_2	P_2	P_{8258}	P_2	P_2

Line 5 intersects

Line	ℓ_1	ℓ_2	ℓ_4	ℓ_6	ℓ_7	ℓ_8
in point	P_2	P_2	P_2	P_2	P_{11898}	P_{237178}

Line 6 intersects

Line	ℓ_1	ℓ_2	ℓ_4	ℓ_5	ℓ_7	ℓ_9
in point	P_2	P_2	P_2	P_2	P_{11961}	P_{241337}

Line 7 intersects

Line	ℓ_0	ℓ_3	ℓ_5	ℓ_6
in point	P_5	P_{8322}	P_{11898}	P_{11961}

Line 8 intersects

Line	ℓ_1	ℓ_3	ℓ_5	ℓ_9
in point	P_{3652}	P_{11905}	P_{237178}	P_{4227}

Line 9 intersects

Line	ℓ_2	ℓ_3	ℓ_6	ℓ_8
in point	P_{3716}	P_{11841}	P_{241337}	P_{4227}

The surface has 4353 points:

Too many to print.