

Rank-65613 over GF(64)

January 15, 2021

The equation

The equation of the surface is :

$$X_1^3 + X_3^3 + X_0^2 X_3 + X_0 X_1 X_2 = 0$$

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

The point rank of the equation over GF(64) is 1091047557

General information

Number of lines	11
Number of points	4353
Number of singular points	2
Number of Eckardt points	0
Number of double points	15
Number of single points	676
Number of points off lines	3660
Number of Hesse planes	0
Number of axes	0
Type of points on lines	65^{11}
Type of lines on points	$5, 4, 2^{15}, 1^{676}, 0^{3660}$

Singular Points

The surface has 2 singular points:

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

$$1 : P_{4163} = \mathbf{P}(1, 0, 0, 1) = \mathbf{P}(1, 0, 0, 1)$$

The 11 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{4096} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{4096} = \mathbf{Pl}(0, 0, 1, 0, 0, 0)_2$$

$$\begin{aligned}
\ell_1 &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{270400} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{270400} = \mathbf{Pl}(0, 1, 1, 0, 0, 0)_{66} \\
\ell_2 &= \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{17043521} = \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{17043521} = \mathbf{Pl}(0, 1, 0, 0, 0, 1)_{270465} \\
\ell_3 &= \begin{bmatrix} 0 & 1 & 0 & \epsilon^{21} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{17047161} = \begin{bmatrix} 0 & 1 & 0 & 57 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{17047161} = \mathbf{Pl}(0, 57, 0, 0, 0, 1)_{270521} \\
\ell_4 &= \begin{bmatrix} 0 & 1 & 0 & \epsilon^{42} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{17047096} = \begin{bmatrix} 0 & 1 & 0 & 56 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{17047096} = \mathbf{Pl}(0, 56, 0, 0, 0, 1)_{270520} \\
\ell_5 &= \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{4225} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{4225} = \mathbf{Pl}(1, 1, 0, 0, 1, 1)_{536577} \\
\ell_6 &= \begin{bmatrix} 1 & 0 & \epsilon^{21} & 0 \\ 0 & 1 & 0 & \epsilon^{21} \end{bmatrix}_{240825} = \begin{bmatrix} 1 & 0 & 57 & 0 \\ 0 & 1 & 0 & 57 \end{bmatrix}_{240825} = \mathbf{Pl}(56, 57, 0, 0, 1, 1)_{536632} \\
\ell_7 &= \begin{bmatrix} 1 & 0 & \epsilon^{42} & 0 \\ 0 & 1 & 0 & \epsilon^{42} \end{bmatrix}_{236600} = \begin{bmatrix} 1 & 0 & 56 & 0 \\ 0 & 1 & 0 & 56 \end{bmatrix}_{236600} = \mathbf{Pl}(57, 56, 0, 0, 1, 1)_{536633} \\
\ell_8 &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 1 & 1 \end{bmatrix}_{266369} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 1 & 1 \end{bmatrix}_{266369} = \mathbf{Pl}(1, 1, 1, 1, 1, 0)_{20354} \\
\ell_9 &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & \epsilon^{21} & \epsilon^{42} \end{bmatrix}_{269945} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 57 & 56 \end{bmatrix}_{269945} = \mathbf{Pl}(57, 56, 56, 57, 1, 0)_{246139} \\
\ell_{10} &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & \epsilon^{42} & \epsilon^{21} \end{bmatrix}_{270008} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 56 & 57 \end{bmatrix}_{270008} = \mathbf{Pl}(56, 57, 57, 56, 1, 0)_{242232}
\end{aligned}$$

Rank of lines: (4096, 270400, 17043521, 17047161, 17047096, 4225, 240825, 236600, 266369, 269945, 270008)

Rank of points on Klein quadric: (2, 66, 270465, 270521, 270520, 536577, 536632, 536633, 20354, 246139, 242232)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 15 Double points:

The double points on the surface are:

$$\begin{aligned}
P_{68} &= (1, 0, 1, 0) = \ell_0 \cap \ell_5 & P_{237185} &= (0, 57, 56, 1) = \ell_4 \cap \ell_9 \\
P_{123} &= (56, 0, 1, 0) = \ell_0 \cap \ell_6 & P_{237754} &= (57, 1, 57, 1) = \ell_5 \cap \ell_9 \\
P_{124} &= (57, 0, 1, 0) = \ell_0 \cap \ell_7 & P_{233657} &= (56, 1, 56, 1) = \ell_5 \cap \ell_{10} \\
P_{4226} &= (0, 1, 0, 1) = \ell_2 \cap \ell_5 & P_{237178} &= (57, 56, 56, 1) = \ell_6 \cap \ell_8 \\
P_{8322} &= (0, 1, 1, 1) = \ell_2 \cap \ell_8 & P_{11897} &= (56, 56, 1, 1) = \ell_6 \cap \ell_9 \\
P_{7746} &= (0, 56, 0, 1) = \ell_3 \cap \ell_6 & P_{241337} &= (56, 57, 57, 1) = \ell_7 \cap \ell_8 \\
P_{241217} &= (0, 56, 57, 1) = \ell_3 \cap \ell_{10} & P_{11962} &= (57, 57, 1, 1) = \ell_7 \cap \ell_{10} \\
P_{7810} &= (0, 57, 0, 1) = \ell_4 \cap \ell_7
\end{aligned}$$

Single Points

The surface has 676 single points:

The single points on the surface are:

0 : $P_0 = (1, 0, 0, 0)$ lies on line ℓ_0
 1 : $P_4 = (1, 1, 1, 1)$ lies on line ℓ_5
 2 : $P_{69} = (2, 0, 1, 0)$ lies on line ℓ_0
 3 : $P_{70} = (3, 0, 1, 0)$ lies on line ℓ_0
 4 : $P_{71} = (4, 0, 1, 0)$ lies on line ℓ_0
 5 : $P_{72} = (5, 0, 1, 0)$ lies on line ℓ_0
 6 : $P_{73} = (6, 0, 1, 0)$ lies on line ℓ_0
 7 : $P_{74} = (7, 0, 1, 0)$ lies on line ℓ_0
 8 : $P_{75} = (8, 0, 1, 0)$ lies on line ℓ_0
 9 : $P_{76} = (9, 0, 1, 0)$ lies on line ℓ_0
 10 : $P_{77} = (10, 0, 1, 0)$ lies on line ℓ_0
 11 : $P_{78} = (11, 0, 1, 0)$ lies on line ℓ_0
 12 : $P_{79} = (12, 0, 1, 0)$ lies on line ℓ_0
 13 : $P_{80} = (13, 0, 1, 0)$ lies on line ℓ_0
 14 : $P_{81} = (14, 0, 1, 0)$ lies on line ℓ_0
 15 : $P_{82} = (15, 0, 1, 0)$ lies on line ℓ_0
 16 : $P_{83} = (16, 0, 1, 0)$ lies on line ℓ_0
 17 : $P_{84} = (17, 0, 1, 0)$ lies on line ℓ_0
 18 : $P_{85} = (18, 0, 1, 0)$ lies on line ℓ_0
 19 : $P_{86} = (19, 0, 1, 0)$ lies on line ℓ_0
 20 : $P_{87} = (20, 0, 1, 0)$ lies on line ℓ_0
 21 : $P_{88} = (21, 0, 1, 0)$ lies on line ℓ_0
 22 : $P_{89} = (22, 0, 1, 0)$ lies on line ℓ_0
 23 : $P_{90} = (23, 0, 1, 0)$ lies on line ℓ_0
 24 : $P_{91} = (24, 0, 1, 0)$ lies on line ℓ_0
 25 : $P_{92} = (25, 0, 1, 0)$ lies on line ℓ_0
 26 : $P_{93} = (26, 0, 1, 0)$ lies on line ℓ_0
 27 : $P_{94} = (27, 0, 1, 0)$ lies on line ℓ_0
 28 : $P_{95} = (28, 0, 1, 0)$ lies on line ℓ_0
 29 : $P_{96} = (29, 0, 1, 0)$ lies on line ℓ_0
 30 : $P_{97} = (30, 0, 1, 0)$ lies on line ℓ_0
 31 : $P_{98} = (31, 0, 1, 0)$ lies on line ℓ_0
 32 : $P_{99} = (32, 0, 1, 0)$ lies on line ℓ_0
 33 : $P_{100} = (33, 0, 1, 0)$ lies on line ℓ_0
 34 : $P_{101} = (34, 0, 1, 0)$ lies on line ℓ_0
 35 : $P_{102} = (35, 0, 1, 0)$ lies on line ℓ_0
 36 : $P_{103} = (36, 0, 1, 0)$ lies on line ℓ_0
 37 : $P_{104} = (37, 0, 1, 0)$ lies on line ℓ_0
 38 : $P_{105} = (38, 0, 1, 0)$ lies on line ℓ_0
 39 : $P_{106} = (39, 0, 1, 0)$ lies on line ℓ_0
 40 : $P_{107} = (40, 0, 1, 0)$ lies on line ℓ_0
 41 : $P_{108} = (41, 0, 1, 0)$ lies on line ℓ_0
 42 : $P_{109} = (42, 0, 1, 0)$ lies on line ℓ_0
 43 : $P_{110} = (43, 0, 1, 0)$ lies on line ℓ_0
 44 : $P_{111} = (44, 0, 1, 0)$ lies on line ℓ_0
 45 : $P_{112} = (45, 0, 1, 0)$ lies on line ℓ_0
 46 : $P_{113} = (46, 0, 1, 0)$ lies on line ℓ_0
 47 : $P_{114} = (47, 0, 1, 0)$ lies on line ℓ_0
 48 : $P_{115} = (48, 0, 1, 0)$ lies on line ℓ_0
 49 : $P_{116} = (49, 0, 1, 0)$ lies on line ℓ_0
 50 : $P_{117} = (50, 0, 1, 0)$ lies on line ℓ_0
 51 : $P_{118} = (51, 0, 1, 0)$ lies on line ℓ_0
 52 : $P_{119} = (52, 0, 1, 0)$ lies on line ℓ_0
 53 : $P_{120} = (53, 0, 1, 0)$ lies on line ℓ_0

54 : $P_{121} = (54, 0, 1, 0)$ lies on line ℓ_0
 55 : $P_{122} = (55, 0, 1, 0)$ lies on line ℓ_0
 56 : $P_{125} = (58, 0, 1, 0)$ lies on line ℓ_0
 57 : $P_{126} = (59, 0, 1, 0)$ lies on line ℓ_0
 58 : $P_{127} = (60, 0, 1, 0)$ lies on line ℓ_0
 59 : $P_{128} = (61, 0, 1, 0)$ lies on line ℓ_0
 60 : $P_{129} = (62, 0, 1, 0)$ lies on line ℓ_0
 61 : $P_{130} = (63, 0, 1, 0)$ lies on line ℓ_0
 62 : $P_{132} = (1, 1, 1, 0)$ lies on line ℓ_8
 63 : $P_{3708} = (57, 56, 1, 0)$ lies on line ℓ_9
 64 : $P_{3771} = (56, 57, 1, 0)$ lies on line ℓ_{10}
 65 : $P_{8259} = (1, 0, 1, 1)$ lies on line ℓ_1
 66 : $P_{11841} = (0, 56, 1, 1)$ lies on line ℓ_3
 67 : $P_{11905} = (0, 57, 1, 1)$ lies on line ℓ_4
 68 : $P_{12354} = (1, 0, 2, 1)$ lies on line ℓ_1
 69 : $P_{12417} = (0, 1, 2, 1)$ lies on line ℓ_2
 70 : $P_{12419} = (2, 1, 2, 1)$ lies on line ℓ_5
 71 : $P_{12484} = (3, 2, 2, 1)$ lies on line ℓ_8
 72 : $P_{13459} = (18, 17, 2, 1)$ lies on line ℓ_9
 73 : $P_{13585} = (16, 19, 2, 1)$ lies on line ℓ_{10}
 74 : $P_{15937} = (0, 56, 2, 1)$ lies on line ℓ_3
 75 : $P_{15954} = (17, 56, 2, 1)$ lies on line ℓ_6
 76 : $P_{16001} = (0, 57, 2, 1)$ lies on line ℓ_4
 77 : $P_{16020} = (19, 57, 2, 1)$ lies on line ℓ_7
 78 : $P_{16450} = (1, 0, 3, 1)$ lies on line ℓ_1
 79 : $P_{16513} = (0, 1, 3, 1)$ lies on line ℓ_2
 80 : $P_{16516} = (3, 1, 3, 1)$ lies on line ℓ_5
 81 : $P_{16643} = (2, 3, 3, 1)$ lies on line ℓ_8
 82 : $P_{19116} = (43, 41, 3, 1)$ lies on line ℓ_9
 83 : $P_{19177} = (40, 42, 3, 1)$ lies on line ℓ_{10}
 84 : $P_{20033} = (0, 56, 3, 1)$ lies on line ℓ_3
 85 : $P_{20074} = (41, 56, 3, 1)$ lies on line ℓ_6
 86 : $P_{20097} = (0, 57, 3, 1)$ lies on line ℓ_4
 87 : $P_{20139} = (42, 57, 3, 1)$ lies on line ℓ_7
 88 : $P_{20546} = (1, 0, 4, 1)$ lies on line ℓ_1
 89 : $P_{20609} = (0, 1, 4, 1)$ lies on line ℓ_2
 90 : $P_{20613} = (4, 1, 4, 1)$ lies on line ℓ_5
 91 : $P_{20806} = (5, 4, 4, 1)$ lies on line ℓ_8
 92 : $P_{22760} = (39, 34, 4, 1)$ lies on line ℓ_9
 93 : $P_{23012} = (35, 38, 4, 1)$ lies on line ℓ_{10}
 94 : $P_{24129} = (0, 56, 4, 1)$ lies on line ℓ_3
 95 : $P_{24163} = (34, 56, 4, 1)$ lies on line ℓ_6
 96 : $P_{24193} = (0, 57, 4, 1)$ lies on line ℓ_4
 97 : $P_{24231} = (38, 57, 4, 1)$ lies on line ℓ_7
 98 : $P_{24642} = (1, 0, 5, 1)$ lies on line ℓ_1
 99 : $P_{24705} = (0, 1, 5, 1)$ lies on line ℓ_2
 100 : $P_{24710} = (5, 1, 5, 1)$ lies on line ℓ_5
 101 : $P_{24965} = (4, 5, 5, 1)$ lies on line ℓ_8
 102 : $P_{26335} = (30, 26, 5, 1)$ lies on line ℓ_9
 103 : $P_{26652} = (27, 31, 5, 1)$ lies on line ℓ_{10}
 104 : $P_{28225} = (0, 56, 5, 1)$ lies on line ℓ_3
 105 : $P_{28251} = (26, 56, 5, 1)$ lies on line ℓ_6
 106 : $P_{28289} = (0, 57, 5, 1)$ lies on line ℓ_4
 107 : $P_{28320} = (31, 57, 5, 1)$ lies on line ℓ_7

108 : $P_{28738} = (1, 0, 6, 1)$ lies on line ℓ_1
 109 : $P_{28801} = (0, 1, 6, 1)$ lies on line ℓ_2
 110 : $P_{28807} = (6, 1, 6, 1)$ lies on line ℓ_5
 111 : $P_{29128} = (7, 6, 6, 1)$ lies on line ℓ_8
 112 : $P_{32053} = (52, 51, 6, 1)$ lies on line ℓ_9
 113 : $P_{32179} = (50, 53, 6, 1)$ lies on line ℓ_{10}
 114 : $P_{32321} = (0, 56, 6, 1)$ lies on line ℓ_3
 115 : $P_{32372} = (51, 56, 6, 1)$ lies on line ℓ_6
 116 : $P_{32385} = (0, 57, 6, 1)$ lies on line ℓ_4
 117 : $P_{32438} = (53, 57, 6, 1)$ lies on line ℓ_7
 118 : $P_{32834} = (1, 0, 7, 1)$ lies on line ℓ_1
 119 : $P_{32897} = (0, 1, 7, 1)$ lies on line ℓ_2
 120 : $P_{32904} = (7, 1, 7, 1)$ lies on line ℓ_5
 121 : $P_{33287} = (6, 7, 7, 1)$ lies on line ℓ_8
 122 : $P_{33550} = (13, 11, 7, 1)$ lies on line ℓ_9
 123 : $P_{33611} = (10, 12, 7, 1)$ lies on line ℓ_{10}
 124 : $P_{36417} = (0, 56, 7, 1)$ lies on line ℓ_3
 125 : $P_{36428} = (11, 56, 7, 1)$ lies on line ℓ_6
 126 : $P_{36481} = (0, 57, 7, 1)$ lies on line ℓ_4
 127 : $P_{36493} = (12, 57, 7, 1)$ lies on line ℓ_7
 128 : $P_{36930} = (1, 0, 8, 1)$ lies on line ℓ_1
 129 : $P_{36993} = (0, 1, 8, 1)$ lies on line ℓ_2
 130 : $P_{37001} = (8, 1, 8, 1)$ lies on line ℓ_5
 131 : $P_{37450} = (9, 8, 8, 1)$ lies on line ℓ_8
 132 : $P_{39341} = (44, 37, 8, 1)$ lies on line ℓ_9
 133 : $P_{39845} = (36, 45, 8, 1)$ lies on line ℓ_{10}
 134 : $P_{40513} = (0, 56, 8, 1)$ lies on line ℓ_3
 135 : $P_{40550} = (37, 56, 8, 1)$ lies on line ℓ_6
 136 : $P_{40577} = (0, 57, 8, 1)$ lies on line ℓ_4
 137 : $P_{40622} = (45, 57, 8, 1)$ lies on line ℓ_7
 138 : $P_{41026} = (1, 0, 9, 1)$ lies on line ℓ_1
 139 : $P_{41089} = (0, 1, 9, 1)$ lies on line ℓ_2
 140 : $P_{41098} = (9, 1, 9, 1)$ lies on line ℓ_5
 141 : $P_{41609} = (8, 9, 9, 1)$ lies on line ℓ_8
 142 : $P_{42333} = (28, 20, 9, 1)$ lies on line ℓ_{10}
 143 : $P_{42902} = (21, 29, 9, 1)$ lies on line ℓ_9
 144 : $P_{44609} = (0, 56, 9, 1)$ lies on line ℓ_3
 145 : $P_{44638} = (29, 56, 9, 1)$ lies on line ℓ_6
 146 : $P_{44673} = (0, 57, 9, 1)$ lies on line ℓ_4
 147 : $P_{44693} = (20, 57, 9, 1)$ lies on line ℓ_7
 148 : $P_{45122} = (1, 0, 10, 1)$ lies on line ℓ_1
 149 : $P_{45185} = (0, 1, 10, 1)$ lies on line ℓ_2
 150 : $P_{45195} = (10, 1, 10, 1)$ lies on line ℓ_5
 151 : $P_{45772} = (11, 10, 10, 1)$ lies on line ℓ_8
 152 : $P_{48512} = (63, 52, 10, 1)$ lies on line ℓ_9
 153 : $P_{48705} = (0, 56, 10, 1)$ lies on line ℓ_3
 154 : $P_{48757} = (52, 56, 10, 1)$ lies on line ℓ_6
 155 : $P_{48769} = (0, 57, 10, 1)$ lies on line ℓ_4
 156 : $P_{48831} = (62, 57, 10, 1)$ lies on line ℓ_7
 157 : $P_{49142} = (53, 62, 10, 1)$ lies on line ℓ_{10}
 158 : $P_{49218} = (1, 0, 11, 1)$ lies on line ℓ_1
 159 : $P_{49281} = (0, 1, 11, 1)$ lies on line ℓ_2
 160 : $P_{49292} = (11, 1, 11, 1)$ lies on line ℓ_5
 161 : $P_{49678} = (13, 7, 11, 1)$ lies on line ℓ_{10}
 162 : $P_{49931} = (10, 11, 11, 1)$ lies on line ℓ_8
 163 : $P_{49991} = (6, 12, 11, 1)$ lies on line ℓ_9
 164 : $P_{52801} = (0, 56, 11, 1)$ lies on line ℓ_3
 165 : $P_{52813} = (12, 56, 11, 1)$ lies on line ℓ_6
 166 : $P_{52865} = (0, 57, 11, 1)$ lies on line ℓ_4
 167 : $P_{52872} = (7, 57, 11, 1)$ lies on line ℓ_7
 168 : $P_{53314} = (1, 0, 12, 1)$ lies on line ℓ_1
 169 : $P_{53377} = (0, 1, 12, 1)$ lies on line ℓ_2
 170 : $P_{53389} = (12, 1, 12, 1)$ lies on line ℓ_5
 171 : $P_{53771} = (10, 7, 12, 1)$ lies on line ℓ_9
 172 : $P_{54023} = (6, 11, 12, 1)$ lies on line ℓ_{10}
 173 : $P_{54094} = (13, 12, 12, 1)$ lies on line ℓ_8
 174 : $P_{56897} = (0, 56, 12, 1)$ lies on line ℓ_3
 175 : $P_{56904} = (7, 56, 12, 1)$ lies on line ℓ_6
 176 : $P_{56961} = (0, 57, 12, 1)$ lies on line ℓ_4
 177 : $P_{56972} = (11, 57, 12, 1)$ lies on line ℓ_7
 178 : $P_{57410} = (1, 0, 13, 1)$ lies on line ℓ_1
 179 : $P_{57473} = (0, 1, 13, 1)$ lies on line ℓ_2
 180 : $P_{57486} = (13, 1, 13, 1)$ lies on line ℓ_5
 181 : $P_{58253} = (12, 13, 13, 1)$ lies on line ℓ_8
 182 : $P_{60671} = (62, 50, 13, 1)$ lies on line ℓ_{10}
 183 : $P_{60993} = (0, 56, 13, 1)$ lies on line ℓ_3
 184 : $P_{61056} = (63, 56, 13, 1)$ lies on line ℓ_6
 185 : $P_{61057} = (0, 57, 13, 1)$ lies on line ℓ_4
 186 : $P_{61107} = (50, 57, 13, 1)$ lies on line ℓ_7
 187 : $P_{61492} = (51, 63, 13, 1)$ lies on line ℓ_9
 188 : $P_{61506} = (1, 0, 14, 1)$ lies on line ℓ_1
 189 : $P_{61569} = (0, 1, 14, 1)$ lies on line ℓ_2
 190 : $P_{61583} = (14, 1, 14, 1)$ lies on line ℓ_5
 191 : $P_{62416} = (15, 14, 14, 1)$ lies on line ℓ_8
 192 : $P_{62938} = (25, 22, 14, 1)$ lies on line ℓ_9
 193 : $P_{63064} = (23, 24, 14, 1)$ lies on line ℓ_{10}
 194 : $P_{65089} = (0, 56, 14, 1)$ lies on line ℓ_3
 195 : $P_{65111} = (22, 56, 14, 1)$ lies on line ℓ_6
 196 : $P_{65153} = (0, 57, 14, 1)$ lies on line ℓ_4
 197 : $P_{65177} = (24, 57, 14, 1)$ lies on line ℓ_7
 198 : $P_{65602} = (1, 0, 15, 1)$ lies on line ℓ_1
 199 : $P_{65665} = (0, 1, 15, 1)$ lies on line ℓ_2
 200 : $P_{65680} = (15, 1, 15, 1)$ lies on line ℓ_5
 201 : $P_{66575} = (14, 15, 15, 1)$ lies on line ℓ_8
 202 : $P_{67760} = (47, 33, 15, 1)$ lies on line ℓ_{10}
 203 : $P_{68577} = (32, 46, 15, 1)$ lies on line ℓ_9
 204 : $P_{69185} = (0, 56, 15, 1)$ lies on line ℓ_3
 205 : $P_{69231} = (46, 56, 15, 1)$ lies on line ℓ_6
 206 : $P_{69249} = (0, 57, 15, 1)$ lies on line ℓ_4
 207 : $P_{69282} = (33, 57, 15, 1)$ lies on line ℓ_7
 208 : $P_{69698} = (1, 0, 16, 1)$ lies on line ℓ_1
 209 : $P_{69761} = (0, 1, 16, 1)$ lies on line ℓ_2
 210 : $P_{69777} = (16, 1, 16, 1)$ lies on line ℓ_5
 211 : $P_{70738} = (17, 16, 16, 1)$ lies on line ℓ_8
 212 : $P_{72507} = (58, 43, 16, 1)$ lies on line ℓ_9
 213 : $P_{73281} = (0, 56, 16, 1)$ lies on line ℓ_3
 214 : $P_{73324} = (43, 56, 16, 1)$ lies on line ℓ_6
 215 : $P_{73345} = (0, 57, 16, 1)$ lies on line ℓ_4

216 : $P_{73404} = (59, 57, 16, 1)$ lies on line ℓ_7
 217 : $P_{73515} = (42, 59, 16, 1)$ lies on line ℓ_{10}
 218 : $P_{73794} = (1, 0, 17, 1)$ lies on line ℓ_1
 219 : $P_{73857} = (0, 1, 17, 1)$ lies on line ℓ_2
 220 : $P_{73874} = (17, 1, 17, 1)$ lies on line ℓ_5
 221 : $P_{73939} = (18, 2, 17, 1)$ lies on line ℓ_{10}
 222 : $P_{74897} = (16, 17, 17, 1)$ lies on line ℓ_8
 223 : $P_{75012} = (3, 19, 17, 1)$ lies on line ℓ_9
 224 : $P_{77377} = (0, 56, 17, 1)$ lies on line ℓ_3
 225 : $P_{77396} = (19, 56, 17, 1)$ lies on line ℓ_6
 226 : $P_{77441} = (0, 57, 17, 1)$ lies on line ℓ_4
 227 : $P_{77443} = (2, 57, 17, 1)$ lies on line ℓ_7
 228 : $P_{77890} = (1, 0, 18, 1)$ lies on line ℓ_1
 229 : $P_{77953} = (0, 1, 18, 1)$ lies on line ℓ_2
 230 : $P_{77971} = (18, 1, 18, 1)$ lies on line ℓ_5
 231 : $P_{79060} = (19, 18, 18, 1)$ lies on line ℓ_8
 232 : $P_{80508} = (59, 40, 18, 1)$ lies on line ℓ_{10}
 233 : $P_{81473} = (0, 56, 18, 1)$ lies on line ℓ_3
 234 : $P_{81531} = (58, 56, 18, 1)$ lies on line ℓ_6
 235 : $P_{81537} = (0, 57, 18, 1)$ lies on line ℓ_4
 236 : $P_{81577} = (40, 57, 18, 1)$ lies on line ℓ_7
 237 : $P_{81642} = (41, 58, 18, 1)$ lies on line ℓ_9
 238 : $P_{81986} = (1, 0, 19, 1)$ lies on line ℓ_1
 239 : $P_{82049} = (0, 1, 19, 1)$ lies on line ℓ_2
 240 : $P_{82068} = (19, 1, 19, 1)$ lies on line ℓ_5
 241 : $P_{82129} = (16, 2, 19, 1)$ lies on line ℓ_9
 242 : $P_{83076} = (3, 17, 19, 1)$ lies on line ℓ_{10}
 243 : $P_{83219} = (18, 19, 19, 1)$ lies on line ℓ_8
 244 : $P_{85569} = (0, 56, 19, 1)$ lies on line ℓ_3
 245 : $P_{85571} = (2, 56, 19, 1)$ lies on line ℓ_6
 246 : $P_{85633} = (0, 57, 19, 1)$ lies on line ℓ_4
 247 : $P_{85650} = (17, 57, 19, 1)$ lies on line ℓ_7
 248 : $P_{86082} = (1, 0, 20, 1)$ lies on line ℓ_1
 249 : $P_{86145} = (0, 1, 20, 1)$ lies on line ℓ_2
 250 : $P_{86165} = (20, 1, 20, 1)$ lies on line ℓ_5
 251 : $P_{86685} = (28, 9, 20, 1)$ lies on line ℓ_9
 252 : $P_{87382} = (21, 20, 20, 1)$ lies on line ℓ_8
 253 : $P_{87945} = (8, 29, 20, 1)$ lies on line ℓ_{10}
 254 : $P_{89665} = (0, 56, 20, 1)$ lies on line ℓ_3
 255 : $P_{89674} = (9, 56, 20, 1)$ lies on line ℓ_6
 256 : $P_{89729} = (0, 57, 20, 1)$ lies on line ℓ_4
 257 : $P_{89758} = (29, 57, 20, 1)$ lies on line ℓ_7
 258 : $P_{90178} = (1, 0, 21, 1)$ lies on line ℓ_1
 259 : $P_{90241} = (0, 1, 21, 1)$ lies on line ℓ_2
 260 : $P_{90262} = (21, 1, 21, 1)$ lies on line ℓ_5
 261 : $P_{91541} = (20, 21, 21, 1)$ lies on line ℓ_8
 262 : $P_{92529} = (48, 36, 21, 1)$ lies on line ℓ_{10}
 263 : $P_{93350} = (37, 49, 21, 1)$ lies on line ℓ_9
 264 : $P_{93761} = (0, 56, 21, 1)$ lies on line ℓ_3
 265 : $P_{93810} = (49, 56, 21, 1)$ lies on line ℓ_6
 266 : $P_{93825} = (0, 57, 21, 1)$ lies on line ℓ_4
 267 : $P_{93861} = (36, 57, 21, 1)$ lies on line ℓ_7
 268 : $P_{94274} = (1, 0, 22, 1)$ lies on line ℓ_1
 269 : $P_{94337} = (0, 1, 22, 1)$ lies on line ℓ_2

270 : $P_{94359} = (22, 1, 22, 1)$ lies on line ℓ_5
 271 : $P_{95194} = (25, 14, 22, 1)$ lies on line ℓ_{10}
 272 : $P_{95704} = (23, 22, 22, 1)$ lies on line ℓ_8
 273 : $P_{95824} = (15, 24, 22, 1)$ lies on line ℓ_9
 274 : $P_{97857} = (0, 56, 22, 1)$ lies on line ℓ_3
 275 : $P_{97881} = (24, 56, 22, 1)$ lies on line ℓ_6
 276 : $P_{97921} = (0, 57, 22, 1)$ lies on line ℓ_4
 277 : $P_{97935} = (14, 57, 22, 1)$ lies on line ℓ_7
 278 : $P_{98370} = (1, 0, 23, 1)$ lies on line ℓ_1
 279 : $P_{98433} = (0, 1, 23, 1)$ lies on line ℓ_2
 280 : $P_{98456} = (23, 1, 23, 1)$ lies on line ℓ_5
 281 : $P_{99863} = (22, 23, 23, 1)$ lies on line ℓ_8
 282 : $P_{100471} = (54, 32, 23, 1)$ lies on line ℓ_9
 283 : $P_{101922} = (33, 55, 23, 1)$ lies on line ℓ_{10}
 284 : $P_{101953} = (0, 56, 23, 1)$ lies on line ℓ_3
 285 : $P_{101985} = (32, 56, 23, 1)$ lies on line ℓ_6
 286 : $P_{102017} = (0, 57, 23, 1)$ lies on line ℓ_4
 287 : $P_{102072} = (55, 57, 23, 1)$ lies on line ℓ_7
 288 : $P_{102466} = (1, 0, 24, 1)$ lies on line ℓ_1
 289 : $P_{102529} = (0, 1, 24, 1)$ lies on line ℓ_2
 290 : $P_{102553} = (24, 1, 24, 1)$ lies on line ℓ_5
 291 : $P_{103384} = (23, 14, 24, 1)$ lies on line ℓ_9
 292 : $P_{103888} = (15, 22, 24, 1)$ lies on line ℓ_{10}
 293 : $P_{104026} = (25, 24, 24, 1)$ lies on line ℓ_8
 294 : $P_{106049} = (0, 56, 24, 1)$ lies on line ℓ_3
 295 : $P_{106063} = (14, 56, 24, 1)$ lies on line ℓ_6
 296 : $P_{106113} = (0, 57, 24, 1)$ lies on line ℓ_4
 297 : $P_{106135} = (22, 57, 24, 1)$ lies on line ℓ_7
 298 : $P_{106562} = (1, 0, 25, 1)$ lies on line ℓ_1
 299 : $P_{106625} = (0, 1, 25, 1)$ lies on line ℓ_2
 300 : $P_{106650} = (25, 1, 25, 1)$ lies on line ℓ_5
 301 : $P_{108185} = (24, 25, 25, 1)$ lies on line ℓ_8
 302 : $P_{109624} = (55, 47, 25, 1)$ lies on line ℓ_{10}
 303 : $P_{110063} = (46, 54, 25, 1)$ lies on line ℓ_9
 304 : $P_{110145} = (0, 56, 25, 1)$ lies on line ℓ_3
 305 : $P_{110199} = (54, 56, 25, 1)$ lies on line ℓ_6
 306 : $P_{110209} = (0, 57, 25, 1)$ lies on line ℓ_4
 307 : $P_{110256} = (47, 57, 25, 1)$ lies on line ℓ_7
 308 : $P_{110658} = (1, 0, 26, 1)$ lies on line ℓ_1
 309 : $P_{110721} = (0, 1, 26, 1)$ lies on line ℓ_2
 310 : $P_{110747} = (26, 1, 26, 1)$ lies on line ℓ_5
 311 : $P_{111007} = (30, 5, 26, 1)$ lies on line ℓ_{10}
 312 : $P_{112348} = (27, 26, 26, 1)$ lies on line ℓ_8
 313 : $P_{112645} = (4, 31, 26, 1)$ lies on line ℓ_9
 314 : $P_{114241} = (0, 56, 26, 1)$ lies on line ℓ_3
 315 : $P_{114272} = (31, 56, 26, 1)$ lies on line ℓ_6
 316 : $P_{114305} = (0, 57, 26, 1)$ lies on line ℓ_4
 317 : $P_{114310} = (5, 57, 26, 1)$ lies on line ℓ_7
 318 : $P_{114754} = (1, 0, 27, 1)$ lies on line ℓ_1
 319 : $P_{114817} = (0, 1, 27, 1)$ lies on line ℓ_2
 320 : $P_{114844} = (27, 1, 27, 1)$ lies on line ℓ_5
 321 : $P_{116507} = (26, 27, 27, 1)$ lies on line ℓ_8
 322 : $P_{117310} = (61, 39, 27, 1)$ lies on line ℓ_9
 323 : $P_{118337} = (0, 56, 27, 1)$ lies on line ℓ_3

324 : $P_{118376} = (39, 56, 27, 1)$ lies on line ℓ_6
 325 : $P_{118401} = (0, 57, 27, 1)$ lies on line ℓ_4
 326 : $P_{118461} = (60, 57, 27, 1)$ lies on line ℓ_7
 327 : $P_{118631} = (38, 60, 27, 1)$ lies on line ℓ_{10}
 328 : $P_{118850} = (1, 0, 28, 1)$ lies on line ℓ_1
 329 : $P_{118913} = (0, 1, 28, 1)$ lies on line ℓ_2
 330 : $P_{118941} = (28, 1, 28, 1)$ lies on line ℓ_5
 331 : $P_{120670} = (29, 28, 28, 1)$ lies on line ℓ_8
 332 : $P_{121714} = (49, 44, 28, 1)$ lies on line ℓ_9
 333 : $P_{121966} = (45, 48, 28, 1)$ lies on line ℓ_{10}
 334 : $P_{122433} = (0, 56, 28, 1)$ lies on line ℓ_3
 335 : $P_{122477} = (44, 56, 28, 1)$ lies on line ℓ_6
 336 : $P_{122497} = (0, 57, 28, 1)$ lies on line ℓ_4
 337 : $P_{122545} = (48, 57, 28, 1)$ lies on line ℓ_7
 338 : $P_{122946} = (1, 0, 29, 1)$ lies on line ℓ_1
 339 : $P_{123009} = (0, 1, 29, 1)$ lies on line ℓ_2
 340 : $P_{123038} = (29, 1, 29, 1)$ lies on line ℓ_5
 341 : $P_{123542} = (21, 9, 29, 1)$ lies on line ℓ_{10}
 342 : $P_{124233} = (8, 20, 29, 1)$ lies on line ℓ_9
 343 : $P_{124829} = (28, 29, 29, 1)$ lies on line ℓ_8
 344 : $P_{126529} = (0, 56, 29, 1)$ lies on line ℓ_3
 345 : $P_{126549} = (20, 56, 29, 1)$ lies on line ℓ_6
 346 : $P_{126593} = (0, 57, 29, 1)$ lies on line ℓ_4
 347 : $P_{126602} = (9, 57, 29, 1)$ lies on line ℓ_7
 348 : $P_{127042} = (1, 0, 30, 1)$ lies on line ℓ_1
 349 : $P_{127105} = (0, 1, 30, 1)$ lies on line ℓ_2
 350 : $P_{127135} = (30, 1, 30, 1)$ lies on line ℓ_5
 351 : $P_{128992} = (31, 30, 30, 1)$ lies on line ℓ_8
 352 : $P_{129341} = (60, 35, 30, 1)$ lies on line ℓ_{10}
 353 : $P_{130625} = (0, 56, 30, 1)$ lies on line ℓ_3
 354 : $P_{130686} = (61, 56, 30, 1)$ lies on line ℓ_6
 355 : $P_{130689} = (0, 57, 30, 1)$ lies on line ℓ_4
 356 : $P_{130724} = (35, 57, 30, 1)$ lies on line ℓ_7
 357 : $P_{130979} = (34, 61, 30, 1)$ lies on line ℓ_9
 358 : $P_{131138} = (1, 0, 31, 1)$ lies on line ℓ_1
 359 : $P_{131201} = (0, 1, 31, 1)$ lies on line ℓ_2
 360 : $P_{131232} = (31, 1, 31, 1)$ lies on line ℓ_5
 361 : $P_{131484} = (27, 5, 31, 1)$ lies on line ℓ_9
 362 : $P_{132805} = (4, 26, 31, 1)$ lies on line ℓ_{10}
 363 : $P_{133151} = (30, 31, 31, 1)$ lies on line ℓ_8
 364 : $P_{134721} = (0, 56, 31, 1)$ lies on line ℓ_3
 365 : $P_{134726} = (5, 56, 31, 1)$ lies on line ℓ_6
 366 : $P_{134785} = (0, 57, 31, 1)$ lies on line ℓ_4
 367 : $P_{134811} = (26, 57, 31, 1)$ lies on line ℓ_7
 368 : $P_{135234} = (1, 0, 32, 1)$ lies on line ℓ_1
 369 : $P_{135297} = (0, 1, 32, 1)$ lies on line ℓ_2
 370 : $P_{135329} = (32, 1, 32, 1)$ lies on line ℓ_5
 371 : $P_{136759} = (54, 23, 32, 1)$ lies on line ℓ_{10}
 372 : $P_{137314} = (33, 32, 32, 1)$ lies on line ℓ_8
 373 : $P_{138775} = (22, 55, 32, 1)$ lies on line ℓ_9
 374 : $P_{138817} = (0, 56, 32, 1)$ lies on line ℓ_3
 375 : $P_{138872} = (55, 56, 32, 1)$ lies on line ℓ_6
 376 : $P_{138881} = (0, 57, 32, 1)$ lies on line ℓ_4
 377 : $P_{138904} = (23, 57, 32, 1)$ lies on line ℓ_7

378 : $P_{139330} = (1, 0, 33, 1)$ lies on line ℓ_1
 379 : $P_{139393} = (0, 1, 33, 1)$ lies on line ℓ_2
 380 : $P_{139426} = (33, 1, 33, 1)$ lies on line ℓ_5
 381 : $P_{140336} = (47, 15, 33, 1)$ lies on line ℓ_9
 382 : $P_{141473} = (32, 33, 33, 1)$ lies on line ℓ_8
 383 : $P_{142287} = (14, 46, 33, 1)$ lies on line ℓ_{10}
 384 : $P_{142913} = (0, 56, 33, 1)$ lies on line ℓ_3
 385 : $P_{142928} = (15, 56, 33, 1)$ lies on line ℓ_6
 386 : $P_{142977} = (0, 57, 33, 1)$ lies on line ℓ_4
 387 : $P_{143023} = (46, 57, 33, 1)$ lies on line ℓ_7
 388 : $P_{143426} = (1, 0, 34, 1)$ lies on line ℓ_1
 389 : $P_{143489} = (0, 1, 34, 1)$ lies on line ℓ_2
 390 : $P_{143523} = (34, 1, 34, 1)$ lies on line ℓ_5
 391 : $P_{143720} = (39, 4, 34, 1)$ lies on line ℓ_{10}
 392 : $P_{145636} = (35, 34, 34, 1)$ lies on line ℓ_8
 393 : $P_{145862} = (5, 38, 34, 1)$ lies on line ℓ_9
 394 : $P_{147009} = (0, 56, 34, 1)$ lies on line ℓ_3
 395 : $P_{147047} = (38, 56, 34, 1)$ lies on line ℓ_6
 396 : $P_{147073} = (0, 57, 34, 1)$ lies on line ℓ_4
 397 : $P_{147077} = (4, 57, 34, 1)$ lies on line ℓ_7
 398 : $P_{147522} = (1, 0, 35, 1)$ lies on line ℓ_1
 399 : $P_{147585} = (0, 1, 35, 1)$ lies on line ℓ_2
 400 : $P_{147620} = (35, 1, 35, 1)$ lies on line ℓ_5
 401 : $P_{149501} = (60, 30, 35, 1)$ lies on line ℓ_9
 402 : $P_{149795} = (34, 35, 35, 1)$ lies on line ℓ_8
 403 : $P_{151105} = (0, 56, 35, 1)$ lies on line ℓ_3
 404 : $P_{151135} = (30, 56, 35, 1)$ lies on line ℓ_6
 405 : $P_{151169} = (0, 57, 35, 1)$ lies on line ℓ_4
 406 : $P_{151230} = (61, 57, 35, 1)$ lies on line ℓ_7
 407 : $P_{151456} = (31, 61, 35, 1)$ lies on line ℓ_{10}
 408 : $P_{151618} = (1, 0, 36, 1)$ lies on line ℓ_1
 409 : $P_{151681} = (0, 1, 36, 1)$ lies on line ℓ_2
 410 : $P_{151717} = (36, 1, 36, 1)$ lies on line ℓ_5
 411 : $P_{153009} = (48, 21, 36, 1)$ lies on line ℓ_9
 412 : $P_{153958} = (37, 36, 36, 1)$ lies on line ℓ_8
 413 : $P_{154773} = (20, 49, 36, 1)$ lies on line ℓ_{10}
 414 : $P_{155201} = (0, 56, 36, 1)$ lies on line ℓ_3
 415 : $P_{155222} = (21, 56, 36, 1)$ lies on line ℓ_6
 416 : $P_{155265} = (0, 57, 36, 1)$ lies on line ℓ_4
 417 : $P_{155314} = (49, 57, 36, 1)$ lies on line ℓ_7
 418 : $P_{155714} = (1, 0, 37, 1)$ lies on line ℓ_1
 419 : $P_{155777} = (0, 1, 37, 1)$ lies on line ℓ_2
 420 : $P_{155814} = (37, 1, 37, 1)$ lies on line ℓ_5
 421 : $P_{156269} = (44, 8, 37, 1)$ lies on line ℓ_{10}
 422 : $P_{158117} = (36, 37, 37, 1)$ lies on line ℓ_8
 423 : $P_{158602} = (9, 45, 37, 1)$ lies on line ℓ_9
 424 : $P_{159297} = (0, 56, 37, 1)$ lies on line ℓ_3
 425 : $P_{159342} = (45, 56, 37, 1)$ lies on line ℓ_6
 426 : $P_{159361} = (0, 57, 37, 1)$ lies on line ℓ_4
 427 : $P_{159369} = (8, 57, 37, 1)$ lies on line ℓ_7
 428 : $P_{159810} = (1, 0, 38, 1)$ lies on line ℓ_1
 429 : $P_{159873} = (0, 1, 38, 1)$ lies on line ℓ_2
 430 : $P_{159911} = (38, 1, 38, 1)$ lies on line ℓ_5
 431 : $P_{160100} = (35, 4, 38, 1)$ lies on line ℓ_9

432 : $P_{161990} = (5, 34, 38, 1)$ lies on line ℓ_{10}
 433 : $P_{162280} = (39, 38, 38, 1)$ lies on line ℓ_8
 434 : $P_{163393} = (0, 56, 38, 1)$ lies on line ℓ_3
 435 : $P_{163397} = (4, 56, 38, 1)$ lies on line ℓ_6
 436 : $P_{163457} = (0, 57, 38, 1)$ lies on line ℓ_4
 437 : $P_{163491} = (34, 57, 38, 1)$ lies on line ℓ_7
 438 : $P_{163906} = (1, 0, 39, 1)$ lies on line ℓ_1
 439 : $P_{163969} = (0, 1, 39, 1)$ lies on line ℓ_2
 440 : $P_{164008} = (39, 1, 39, 1)$ lies on line ℓ_5
 441 : $P_{165694} = (61, 27, 39, 1)$ lies on line ℓ_{10}
 442 : $P_{166439} = (38, 39, 39, 1)$ lies on line ℓ_8
 443 : $P_{167489} = (0, 56, 39, 1)$ lies on line ℓ_3
 444 : $P_{167549} = (60, 56, 39, 1)$ lies on line ℓ_6
 445 : $P_{167553} = (0, 57, 39, 1)$ lies on line ℓ_4
 446 : $P_{167580} = (27, 57, 39, 1)$ lies on line ℓ_7
 447 : $P_{167771} = (26, 60, 39, 1)$ lies on line ℓ_9
 448 : $P_{168002} = (1, 0, 40, 1)$ lies on line ℓ_1
 449 : $P_{168065} = (0, 1, 40, 1)$ lies on line ℓ_2
 450 : $P_{168105} = (40, 1, 40, 1)$ lies on line ℓ_5
 451 : $P_{169212} = (59, 18, 40, 1)$ lies on line ℓ_9
 452 : $P_{170602} = (41, 40, 40, 1)$ lies on line ℓ_8
 453 : $P_{171585} = (0, 56, 40, 1)$ lies on line ℓ_3
 454 : $P_{171603} = (18, 56, 40, 1)$ lies on line ℓ_6
 455 : $P_{171649} = (0, 57, 40, 1)$ lies on line ℓ_4
 456 : $P_{171707} = (58, 57, 40, 1)$ lies on line ℓ_7
 457 : $P_{171732} = (19, 58, 40, 1)$ lies on line ℓ_{10}
 458 : $P_{172098} = (1, 0, 41, 1)$ lies on line ℓ_1
 459 : $P_{172161} = (0, 1, 41, 1)$ lies on line ℓ_2
 460 : $P_{172202} = (41, 1, 41, 1)$ lies on line ℓ_5
 461 : $P_{172332} = (43, 3, 41, 1)$ lies on line ℓ_{10}
 462 : $P_{174761} = (40, 41, 41, 1)$ lies on line ℓ_8
 463 : $P_{174787} = (2, 42, 41, 1)$ lies on line ℓ_9
 464 : $P_{175681} = (0, 56, 41, 1)$ lies on line ℓ_3
 465 : $P_{175723} = (42, 56, 41, 1)$ lies on line ℓ_6
 466 : $P_{175745} = (0, 57, 41, 1)$ lies on line ℓ_4
 467 : $P_{175748} = (3, 57, 41, 1)$ lies on line ℓ_7
 468 : $P_{176194} = (1, 0, 42, 1)$ lies on line ℓ_1
 469 : $P_{176257} = (0, 1, 42, 1)$ lies on line ℓ_2
 470 : $P_{176299} = (42, 1, 42, 1)$ lies on line ℓ_5
 471 : $P_{176425} = (40, 3, 42, 1)$ lies on line ℓ_9
 472 : $P_{178819} = (2, 41, 42, 1)$ lies on line ℓ_{10}
 473 : $P_{178924} = (43, 42, 42, 1)$ lies on line ℓ_8
 474 : $P_{179777} = (0, 56, 42, 1)$ lies on line ℓ_3
 475 : $P_{179780} = (3, 56, 42, 1)$ lies on line ℓ_6
 476 : $P_{179841} = (0, 57, 42, 1)$ lies on line ℓ_4
 477 : $P_{179882} = (41, 57, 42, 1)$ lies on line ℓ_7
 478 : $P_{180290} = (1, 0, 43, 1)$ lies on line ℓ_1
 479 : $P_{180353} = (0, 1, 43, 1)$ lies on line ℓ_2
 480 : $P_{180396} = (43, 1, 43, 1)$ lies on line ℓ_5
 481 : $P_{181371} = (58, 16, 43, 1)$ lies on line ℓ_{10}
 482 : $P_{183083} = (42, 43, 43, 1)$ lies on line ℓ_8
 483 : $P_{183873} = (0, 56, 43, 1)$ lies on line ℓ_3
 484 : $P_{183932} = (59, 56, 43, 1)$ lies on line ℓ_6
 485 : $P_{183937} = (0, 57, 43, 1)$ lies on line ℓ_4

486 : $P_{183953} = (16, 57, 43, 1)$ lies on line ℓ_7
 487 : $P_{184082} = (17, 59, 43, 1)$ lies on line ℓ_9
 488 : $P_{184386} = (1, 0, 44, 1)$ lies on line ℓ_1
 489 : $P_{184449} = (0, 1, 44, 1)$ lies on line ℓ_2
 490 : $P_{184493} = (44, 1, 44, 1)$ lies on line ℓ_5
 491 : $P_{186226} = (49, 28, 44, 1)$ lies on line ℓ_{10}
 492 : $P_{187246} = (45, 44, 44, 1)$ lies on line ℓ_8
 493 : $P_{187486} = (29, 48, 44, 1)$ lies on line ℓ_9
 494 : $P_{187969} = (0, 56, 44, 1)$ lies on line ℓ_3
 495 : $P_{188017} = (48, 56, 44, 1)$ lies on line ℓ_6
 496 : $P_{188033} = (0, 57, 44, 1)$ lies on line ℓ_4
 497 : $P_{188061} = (28, 57, 44, 1)$ lies on line ℓ_7
 498 : $P_{188482} = (1, 0, 45, 1)$ lies on line ℓ_1
 499 : $P_{188545} = (0, 1, 45, 1)$ lies on line ℓ_2
 500 : $P_{188590} = (45, 1, 45, 1)$ lies on line ℓ_5
 501 : $P_{189029} = (36, 8, 45, 1)$ lies on line ℓ_9
 502 : $P_{190858} = (9, 37, 45, 1)$ lies on line ℓ_{10}
 503 : $P_{191405} = (44, 45, 45, 1)$ lies on line ℓ_8
 504 : $P_{192065} = (0, 56, 45, 1)$ lies on line ℓ_3
 505 : $P_{192073} = (8, 56, 45, 1)$ lies on line ℓ_6
 506 : $P_{192129} = (0, 57, 45, 1)$ lies on line ℓ_4
 507 : $P_{192166} = (37, 57, 45, 1)$ lies on line ℓ_7
 508 : $P_{192578} = (1, 0, 46, 1)$ lies on line ℓ_1
 509 : $P_{192641} = (0, 1, 46, 1)$ lies on line ℓ_2
 510 : $P_{192687} = (46, 1, 46, 1)$ lies on line ℓ_5
 511 : $P_{193569} = (32, 15, 46, 1)$ lies on line ℓ_{10}
 512 : $P_{194703} = (14, 33, 46, 1)$ lies on line ℓ_9
 513 : $P_{195568} = (47, 46, 46, 1)$ lies on line ℓ_8
 514 : $P_{196161} = (0, 56, 46, 1)$ lies on line ℓ_3
 515 : $P_{196194} = (33, 56, 46, 1)$ lies on line ℓ_6
 516 : $P_{196225} = (0, 57, 46, 1)$ lies on line ℓ_4
 517 : $P_{196240} = (15, 57, 46, 1)$ lies on line ℓ_7
 518 : $P_{196674} = (1, 0, 47, 1)$ lies on line ℓ_1
 519 : $P_{196737} = (0, 1, 47, 1)$ lies on line ℓ_2
 520 : $P_{196784} = (47, 1, 47, 1)$ lies on line ℓ_5
 521 : $P_{198328} = (55, 25, 47, 1)$ lies on line ℓ_9
 522 : $P_{199727} = (46, 47, 47, 1)$ lies on line ℓ_8
 523 : $P_{200153} = (24, 54, 47, 1)$ lies on line ℓ_{10}
 524 : $P_{200257} = (0, 56, 47, 1)$ lies on line ℓ_3
 525 : $P_{200282} = (25, 56, 47, 1)$ lies on line ℓ_6
 526 : $P_{200321} = (0, 57, 47, 1)$ lies on line ℓ_4
 527 : $P_{200375} = (54, 57, 47, 1)$ lies on line ℓ_7
 528 : $P_{200770} = (1, 0, 48, 1)$ lies on line ℓ_1
 529 : $P_{200833} = (0, 1, 48, 1)$ lies on line ℓ_2
 530 : $P_{200881} = (48, 1, 48, 1)$ lies on line ℓ_5
 531 : $P_{202606} = (45, 28, 48, 1)$ lies on line ℓ_9
 532 : $P_{203614} = (29, 44, 48, 1)$ lies on line ℓ_{10}
 533 : $P_{203890} = (49, 48, 48, 1)$ lies on line ℓ_8
 534 : $P_{204353} = (0, 56, 48, 1)$ lies on line ℓ_3
 535 : $P_{204381} = (28, 56, 48, 1)$ lies on line ℓ_6
 536 : $P_{204417} = (0, 57, 48, 1)$ lies on line ℓ_4
 537 : $P_{204461} = (44, 57, 48, 1)$ lies on line ℓ_7
 538 : $P_{204866} = (1, 0, 49, 1)$ lies on line ℓ_1
 539 : $P_{204929} = (0, 1, 49, 1)$ lies on line ℓ_2

540 : $P_{204978} = (49, 1, 49, 1)$ lies on line ℓ_5
 541 : $P_{206246} = (37, 21, 49, 1)$ lies on line ℓ_{10}
 542 : $P_{207189} = (20, 36, 49, 1)$ lies on line ℓ_9
 543 : $P_{208049} = (48, 49, 49, 1)$ lies on line ℓ_8
 544 : $P_{208449} = (0, 56, 49, 1)$ lies on line ℓ_3
 545 : $P_{208485} = (36, 56, 49, 1)$ lies on line ℓ_6
 546 : $P_{208513} = (0, 57, 49, 1)$ lies on line ℓ_4
 547 : $P_{208534} = (21, 57, 49, 1)$ lies on line ℓ_7
 548 : $P_{208962} = (1, 0, 50, 1)$ lies on line ℓ_1
 549 : $P_{209025} = (0, 1, 50, 1)$ lies on line ℓ_2
 550 : $P_{209075} = (50, 1, 50, 1)$ lies on line ℓ_5
 551 : $P_{209855} = (62, 13, 50, 1)$ lies on line ℓ_9
 552 : $P_{212212} = (51, 50, 50, 1)$ lies on line ℓ_8
 553 : $P_{212545} = (0, 56, 50, 1)$ lies on line ℓ_3
 554 : $P_{212558} = (13, 56, 50, 1)$ lies on line ℓ_6
 555 : $P_{212609} = (0, 57, 50, 1)$ lies on line ℓ_4
 556 : $P_{212672} = (63, 57, 50, 1)$ lies on line ℓ_7
 557 : $P_{213005} = (12, 63, 50, 1)$ lies on line ℓ_{10}
 558 : $P_{213058} = (1, 0, 51, 1)$ lies on line ℓ_1
 559 : $P_{213121} = (0, 1, 51, 1)$ lies on line ℓ_2
 560 : $P_{213172} = (51, 1, 51, 1)$ lies on line ℓ_5
 561 : $P_{213493} = (52, 6, 51, 1)$ lies on line ℓ_{10}
 562 : $P_{216371} = (50, 51, 51, 1)$ lies on line ℓ_8
 563 : $P_{216456} = (7, 53, 51, 1)$ lies on line ℓ_9
 564 : $P_{216641} = (0, 56, 51, 1)$ lies on line ℓ_3
 565 : $P_{216694} = (53, 56, 51, 1)$ lies on line ℓ_6
 566 : $P_{216705} = (0, 57, 51, 1)$ lies on line ℓ_4
 567 : $P_{216711} = (6, 57, 51, 1)$ lies on line ℓ_7
 568 : $P_{217154} = (1, 0, 52, 1)$ lies on line ℓ_1
 569 : $P_{217217} = (0, 1, 52, 1)$ lies on line ℓ_2
 570 : $P_{217269} = (52, 1, 52, 1)$ lies on line ℓ_5
 571 : $P_{217856} = (63, 10, 52, 1)$ lies on line ℓ_{10}
 572 : $P_{220534} = (53, 52, 52, 1)$ lies on line ℓ_8
 573 : $P_{220737} = (0, 56, 52, 1)$ lies on line ℓ_3
 574 : $P_{220799} = (62, 56, 52, 1)$ lies on line ℓ_6
 575 : $P_{220801} = (0, 57, 52, 1)$ lies on line ℓ_4
 576 : $P_{220811} = (10, 57, 52, 1)$ lies on line ℓ_7
 577 : $P_{221132} = (11, 62, 52, 1)$ lies on line ℓ_9
 578 : $P_{221250} = (1, 0, 53, 1)$ lies on line ℓ_1
 579 : $P_{221313} = (0, 1, 53, 1)$ lies on line ℓ_2
 580 : $P_{221366} = (53, 1, 53, 1)$ lies on line ℓ_5
 581 : $P_{221683} = (50, 6, 53, 1)$ lies on line ℓ_9
 582 : $P_{224520} = (7, 51, 53, 1)$ lies on line ℓ_{10}
 583 : $P_{224693} = (52, 53, 53, 1)$ lies on line ℓ_8
 584 : $P_{224833} = (0, 56, 53, 1)$ lies on line ℓ_3
 585 : $P_{224839} = (6, 56, 53, 1)$ lies on line ℓ_6
 586 : $P_{224897} = (0, 57, 53, 1)$ lies on line ℓ_4
 587 : $P_{224948} = (51, 57, 53, 1)$ lies on line ℓ_7
 588 : $P_{225346} = (1, 0, 54, 1)$ lies on line ℓ_1
 589 : $P_{225409} = (0, 1, 54, 1)$ lies on line ℓ_2
 590 : $P_{225463} = (54, 1, 54, 1)$ lies on line ℓ_5
 591 : $P_{226991} = (46, 25, 54, 1)$ lies on line ℓ_{10}
 592 : $P_{228377} = (24, 47, 54, 1)$ lies on line ℓ_9
 593 : $P_{228856} = (55, 54, 54, 1)$ lies on line ℓ_8

594 : $P_{228929} = (0, 56, 54, 1)$ lies on line ℓ_3
 595 : $P_{228976} = (47, 56, 54, 1)$ lies on line ℓ_6
 596 : $P_{228993} = (0, 57, 54, 1)$ lies on line ℓ_4
 597 : $P_{229018} = (25, 57, 54, 1)$ lies on line ℓ_7
 598 : $P_{229442} = (1, 0, 55, 1)$ lies on line ℓ_1
 599 : $P_{229505} = (0, 1, 55, 1)$ lies on line ℓ_2
 600 : $P_{229560} = (55, 1, 55, 1)$ lies on line ℓ_5
 601 : $P_{230946} = (33, 23, 55, 1)$ lies on line ℓ_9
 602 : $P_{231511} = (22, 32, 55, 1)$ lies on line ℓ_{10}
 603 : $P_{233015} = (54, 55, 55, 1)$ lies on line ℓ_8
 604 : $P_{233025} = (0, 56, 55, 1)$ lies on line ℓ_3
 605 : $P_{233048} = (23, 56, 55, 1)$ lies on line ℓ_6
 606 : $P_{233089} = (0, 57, 55, 1)$ lies on line ℓ_4
 607 : $P_{233121} = (32, 57, 55, 1)$ lies on line ℓ_7
 608 : $P_{233538} = (1, 0, 56, 1)$ lies on line ℓ_1
 609 : $P_{233601} = (0, 1, 56, 1)$ lies on line ℓ_2
 610 : $P_{237121} = (0, 56, 56, 1)$ lies on line ℓ_3
 611 : $P_{237186} = (1, 57, 56, 1)$ lies on line ℓ_7
 612 : $P_{237634} = (1, 0, 57, 1)$ lies on line ℓ_1
 613 : $P_{237697} = (0, 1, 57, 1)$ lies on line ℓ_2
 614 : $P_{241218} = (1, 56, 57, 1)$ lies on line ℓ_6
 615 : $P_{241281} = (0, 57, 57, 1)$ lies on line ℓ_4
 616 : $P_{241730} = (1, 0, 58, 1)$ lies on line ℓ_1
 617 : $P_{241793} = (0, 1, 58, 1)$ lies on line ℓ_2
 618 : $P_{241851} = (58, 1, 58, 1)$ lies on line ℓ_5
 619 : $P_{242922} = (41, 18, 58, 1)$ lies on line ℓ_{10}
 620 : $P_{244308} = (19, 40, 58, 1)$ lies on line ℓ_9
 621 : $P_{245313} = (0, 56, 58, 1)$ lies on line ℓ_3
 622 : $P_{245353} = (40, 56, 58, 1)$ lies on line ℓ_6
 623 : $P_{245377} = (0, 57, 58, 1)$ lies on line ℓ_4
 624 : $P_{245395} = (18, 57, 58, 1)$ lies on line ℓ_7
 625 : $P_{245500} = (59, 58, 58, 1)$ lies on line ℓ_8
 626 : $P_{245826} = (1, 0, 59, 1)$ lies on line ℓ_1
 627 : $P_{245889} = (0, 1, 59, 1)$ lies on line ℓ_2
 628 : $P_{245948} = (59, 1, 59, 1)$ lies on line ℓ_5
 629 : $P_{246891} = (42, 16, 59, 1)$ lies on line ℓ_9
 630 : $P_{248594} = (17, 43, 59, 1)$ lies on line ℓ_{10}
 631 : $P_{249409} = (0, 56, 59, 1)$ lies on line ℓ_3
 632 : $P_{249425} = (16, 56, 59, 1)$ lies on line ℓ_6
 633 : $P_{249473} = (0, 57, 59, 1)$ lies on line ℓ_4
 634 : $P_{249516} = (43, 57, 59, 1)$ lies on line ℓ_7
 635 : $P_{249659} = (58, 59, 59, 1)$ lies on line ℓ_8
 636 : $P_{249922} = (1, 0, 60, 1)$ lies on line ℓ_1
 637 : $P_{249985} = (0, 1, 60, 1)$ lies on line ℓ_2
 638 : $P_{250045} = (60, 1, 60, 1)$ lies on line ℓ_5
 639 : $P_{251687} = (38, 27, 60, 1)$ lies on line ℓ_9
 640 : $P_{252443} = (26, 39, 60, 1)$ lies on line ℓ_{10}
 641 : $P_{253505} = (0, 56, 60, 1)$ lies on line ℓ_3
 642 : $P_{253532} = (27, 56, 60, 1)$ lies on line ℓ_6
 643 : $P_{253569} = (0, 57, 60, 1)$ lies on line ℓ_4
 644 : $P_{253608} = (39, 57, 60, 1)$ lies on line ℓ_7
 645 : $P_{253822} = (61, 60, 60, 1)$ lies on line ℓ_8
 646 : $P_{254018} = (1, 0, 61, 1)$ lies on line ℓ_1
 647 : $P_{254081} = (0, 1, 61, 1)$ lies on line ℓ_2

648 : $P_{254142} = (61, 1, 61, 1)$ lies on line ℓ_5
 649 : $P_{255971} = (34, 30, 61, 1)$ lies on line ℓ_{10}
 650 : $P_{256288} = (31, 35, 61, 1)$ lies on line ℓ_9
 651 : $P_{257601} = (0, 56, 61, 1)$ lies on line ℓ_3
 652 : $P_{257636} = (35, 56, 61, 1)$ lies on line ℓ_6
 653 : $P_{257665} = (0, 57, 61, 1)$ lies on line ℓ_4
 654 : $P_{257695} = (30, 57, 61, 1)$ lies on line ℓ_7
 655 : $P_{257981} = (60, 61, 61, 1)$ lies on line ℓ_8
 656 : $P_{258114} = (1, 0, 62, 1)$ lies on line ℓ_1
 657 : $P_{258177} = (0, 1, 62, 1)$ lies on line ℓ_2
 658 : $P_{258239} = (62, 1, 62, 1)$ lies on line ℓ_5
 659 : $P_{258806} = (53, 10, 62, 1)$ lies on line ℓ_9
 660 : $P_{261452} = (11, 52, 62, 1)$ lies on line ℓ_{10}
 661 : $P_{261697} = (0, 56, 62, 1)$ lies on line ℓ_3
 662 : $P_{261707} = (10, 56, 62, 1)$ lies on line ℓ_6

663 : $P_{261761} = (0, 57, 62, 1)$ lies on line ℓ_4
 664 : $P_{261813} = (52, 57, 62, 1)$ lies on line ℓ_7
 665 : $P_{262144} = (63, 62, 62, 1)$ lies on line ℓ_8
 666 : $P_{262210} = (1, 0, 63, 1)$ lies on line ℓ_1
 667 : $P_{262273} = (0, 1, 63, 1)$ lies on line ℓ_2
 668 : $P_{262336} = (63, 1, 63, 1)$ lies on line ℓ_5
 669 : $P_{263092} = (51, 13, 63, 1)$ lies on line ℓ_{10}
 670 : $P_{265421} = (12, 50, 63, 1)$ lies on line ℓ_9
 671 : $P_{265793} = (0, 56, 63, 1)$ lies on line ℓ_3
 672 : $P_{265843} = (50, 56, 63, 1)$ lies on line ℓ_6
 673 : $P_{265857} = (0, 57, 63, 1)$ lies on line ℓ_4
 674 : $P_{265870} = (13, 57, 63, 1)$ lies on line ℓ_7
 675 : $P_{266303} = (62, 63, 63, 1)$ lies on line ℓ_8

The single points on the surface are:

Points on surface but on no line

The surface has 3660 points not on any line:
Too many to print.

Line Intersection Graph

	0	1	2	3	4	5	6	7	8	9	10
0	0	1	1	1	1	1	1	1	0	0	0
1	1	0	1	1	1	0	0	0	1	1	1
2	1	1	0	1	1	1	0	0	1	0	0
3	1	1	1	0	1	0	1	0	0	0	1
4	1	1	1	1	0	0	0	1	0	1	0
5	1	0	1	0	0	0	0	0	0	1	1
6	1	0	0	1	0	0	0	0	1	1	0
7	1	0	0	0	1	0	0	0	1	0	1
8	0	1	1	0	0	0	1	1	0	1	1
9	0	1	0	0	1	1	1	0	1	0	1
10	0	1	0	1	0	1	0	1	1	1	0

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_7
in point	P_2	P_2	P_2	P_2	P_{68}	P_{123}	P_{124}

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_8	ℓ_9	ℓ_{10}
in point	P_2	P_2	P_2	P_2	P_{4163}	P_{4163}	P_{4163}

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_4	ℓ_5	ℓ_8
in point	P_2	P_2	P_2	P_2	P_{4226}	P_{8322}

Line 3 intersects

Line	ℓ_0	ℓ_1	ℓ_2	ℓ_4	ℓ_6	ℓ_{10}
in point	P_2	P_2	P_2	P_2	P_{7746}	P_{241217}

Line 4 intersects

Line	ℓ_0	ℓ_1	ℓ_2	ℓ_3	ℓ_7	ℓ_9
in point	P_2	P_2	P_2	P_2	P_{7810}	P_{237185}

Line 5 intersects

Line	ℓ_0	ℓ_2	ℓ_9	ℓ_{10}
in point	P_{68}	P_{4226}	P_{237754}	P_{233657}

Line 6 intersects

Line	ℓ_0	ℓ_3	ℓ_8	ℓ_9
in point	P_{123}	P_{7746}	P_{237178}	P_{11897}

Line 7 intersects

Line	ℓ_0	ℓ_4	ℓ_8	ℓ_{10}
in point	P_{124}	P_{7810}	P_{241337}	P_{11962}

Line 8 intersects

Line	ℓ_1	ℓ_2	ℓ_6	ℓ_7	ℓ_9	ℓ_{10}
in point	P_{4163}	P_{8322}	P_{237178}	P_{241337}	P_{4163}	P_{4163}

Line 9 intersects

Line	ℓ_1	ℓ_4	ℓ_5	ℓ_6	ℓ_8	ℓ_{10}
in point	P_{4163}	P_{237185}	P_{237754}	P_{11897}	P_{4163}	P_{4163}

Line 10 intersects

Line	ℓ_1	ℓ_3	ℓ_5	ℓ_7	ℓ_8	ℓ_9
in point	P_{4163}	P_{241217}	P_{233657}	P_{11962}	P_{4163}	P_{4163}

The surface has 4353 points:

Too many to print.