

Rank-73993 over GF(64)

January 15, 2021

The equation

The equation of the surface is :

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

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

The point rank of the equation over GF(64) is 1090789509

General information

Number of lines	9
Number of points	4289
Number of singular points	4
Number of Eckardt points	5
Number of double points	6
Number of single points	558
Number of points off lines	3720
Number of Hesse planes	0
Number of axes	0
Type of points on lines	65^9
Type of lines on points	$3^5, 2^6, 1^{558}, 0^{3720}$

Singular Points

The surface has 4 singular points:

$$0 : P_0 = \mathbf{P}(1, 0, 0, 0) = \mathbf{P}(1, 0, 0, 0)$$

$$1 : P_{51632} = \mathbf{P}(\epsilon^9, \epsilon^{45}, \epsilon^{18}, 1) = \mathbf{P}(47, 37, 11, 1)$$

$$2 : P_{154572} = \mathbf{P}(\epsilon^{18}, \epsilon^{27}, \epsilon^{36}, 1) = \mathbf{P}(11, 46, 36, 1)$$

$$3 : P_{197349} = \mathbf{P}(\epsilon^{36}, \epsilon^{54}, \epsilon^9, 1) = \mathbf{P}(36, 10, 47, 1)$$

The 9 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & \epsilon^{36} & \epsilon^{18} \end{bmatrix}_{740} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 36 & 11 \end{bmatrix}_{740} = \mathbf{Pl}(37, 0, 11, 0, 1, 0)_{5659}$$

$$\begin{aligned}
\ell_1 &= \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & \epsilon^9 & \epsilon^{36} \end{bmatrix}_{2351} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 47 & 36 \end{bmatrix}_{2351} = \mathbf{Pl}(46, 0, 36, 0, 1, 0)_{8843} \\
\ell_2 &= \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & \epsilon^{18} & \epsilon^9 \end{bmatrix}_{3019} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 11 & 47 \end{bmatrix}_{3019} = \mathbf{Pl}(10, 0, 47, 0, 1, 0)_{10204} \\
\ell_3 &= \begin{bmatrix} 0 & 1 & \epsilon^9 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17046575} = \begin{bmatrix} 0 & 1 & 47 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17046575} = \mathbf{Pl}(0, 47, 0, 1, 0, 0)_{239} \\
\ell_4 &= \begin{bmatrix} 1 & 0 & \epsilon^{27} & \epsilon^9 \\ 0 & 1 & \epsilon^{36} & \epsilon^{45} \end{bmatrix}_{12710098} = \begin{bmatrix} 1 & 0 & 46 & 47 \\ 0 & 1 & 36 & 37 \end{bmatrix}_{12710098} = \mathbf{Pl}(36, 46, 11, 37, 11, 1)_{3214616} \\
\ell_5 &= \begin{bmatrix} 1 & 0 & \epsilon^{54} & \epsilon^{18} \\ 0 & 1 & \epsilon^9 & \epsilon^{27} \end{bmatrix}_{2973945} = \begin{bmatrix} 1 & 0 & 10 & 11 \\ 0 & 1 & 47 & 46 \end{bmatrix}_{2973945} = \mathbf{Pl}(47, 10, 36, 46, 36, 1)_{9864970} \\
\ell_6 &= \begin{bmatrix} 0 & 1 & \epsilon^{18} & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17044235} = \begin{bmatrix} 0 & 1 & 11 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17044235} = \mathbf{Pl}(0, 11, 0, 1, 0, 0)_{203} \\
\ell_7 &= \begin{bmatrix} 0 & 1 & \epsilon^{36} & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17045860} = \begin{bmatrix} 0 & 1 & 36 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17045860} = \mathbf{Pl}(0, 36, 0, 1, 0, 0)_{228} \\
\ell_8 &= \begin{bmatrix} 1 & 0 & \epsilon^{45} & \epsilon^{36} \\ 0 & 1 & \epsilon^{18} & \epsilon^{54} \end{bmatrix}_{9741552} = \begin{bmatrix} 1 & 0 & 37 & 36 \\ 0 & 1 & 11 & 10 \end{bmatrix}_{9741552} = \mathbf{Pl}(11, 37, 47, 10, 47, 1)_{12788512}
\end{aligned}$$

Rank of lines: (740, 2351, 3019, 17046575, 12710098, 2973945, 17044235, 17045860, 9741552)

Rank of points on Klein quadric: (5659, 8843, 10204, 239, 3214616, 9864970, 203, 228, 12788512)

Eckardt Points

The surface has 5 Eckardt points:

$$\begin{aligned}
0 : P_0 &= \mathbf{P}(1, 0, 0, 0) = \mathbf{P}(1, 0, 0, 0), \\
1 : P_3 &= \mathbf{P}(0, 0, 0, 1) = \mathbf{P}(0, 0, 0, 1), \\
2 : P_{51632} &= \mathbf{P}(\epsilon^9, \epsilon^{45}, \epsilon^{18}, 1) = \mathbf{P}(47, 37, 11, 1), \\
3 : P_{154572} &= \mathbf{P}(\epsilon^{18}, \epsilon^{27}, \epsilon^{36}, 1) = \mathbf{P}(11, 46, 36, 1), \\
4 : P_{197349} &= \mathbf{P}(\epsilon^{36}, \epsilon^{54}, \epsilon^9, 1) = \mathbf{P}(36, 10, 47, 1).
\end{aligned}$$

Double Points

The surface has 6 Double points:

The double points on the surface are:

$$\begin{aligned}
P_{51585} &= (0, 37, 11, 1) = \ell_0 \cap \ell_7 & P_{45825} &= (0, 11, 10, 1) = \ell_4 \cap \ell_7 \\
P_{154561} &= (0, 46, 36, 1) = \ell_1 \cap \ell_3 & P_{195585} &= (0, 47, 46, 1) = \ell_6 \cap \ell_8 \\
P_{197313} &= (0, 10, 47, 1) = \ell_2 \cap \ell_6 \\
P_{158017} &= (0, 36, 37, 1) = \ell_3 \cap \ell_5
\end{aligned}$$

Single Points

The surface has 558 single points:

The single points on the surface are:

$$\begin{aligned}
0 : P_{707} &= (0, 10, 1, 0) \text{ lies on line } \ell_3 & 3 : P_{2435} &= (0, 37, 1, 0) \text{ lies on line } \ell_6 \\
1 : P_{781} &= (10, 11, 1, 0) \text{ lies on line } \ell_4 & 4 : P_{3011} &= (0, 46, 1, 0) \text{ lies on line } \ell_7 \\
2 : P_{2408} &= (37, 36, 1, 0) \text{ lies on line } \ell_5 & 5 : P_{3121} &= (46, 47, 1, 0) \text{ lies on line } \ell_8
\end{aligned}$$

6 : $P_{4876} = (10, 11, 0, 1)$ lies on line ℓ_8
 7 : $P_{6503} = (37, 36, 0, 1)$ lies on line ℓ_4
 8 : $P_{7216} = (46, 47, 0, 1)$ lies on line ℓ_5
 9 : $P_{8897} = (0, 10, 1, 1)$ lies on line ℓ_3
 10 : $P_{8972} = (11, 11, 1, 1)$ lies on line ℓ_5
 11 : $P_{10597} = (36, 36, 1, 1)$ lies on line ℓ_8
 12 : $P_{10625} = (0, 37, 1, 1)$ lies on line ℓ_6
 13 : $P_{11201} = (0, 46, 1, 1)$ lies on line ℓ_7
 14 : $P_{11312} = (47, 47, 1, 1)$ lies on line ℓ_4
 15 : $P_{12742} = (5, 6, 2, 1)$ lies on line ℓ_5
 16 : $P_{13633} = (0, 20, 2, 1)$ lies on line ℓ_3
 17 : $P_{15105} = (0, 43, 2, 1)$ lies on line ℓ_6
 18 : $P_{15602} = (49, 50, 2, 1)$ lies on line ℓ_4
 19 : $P_{15736} = (55, 52, 2, 1)$ lies on line ℓ_8
 20 : $P_{16257} = (0, 61, 2, 1)$ lies on line ℓ_7
 21 : $P_{17345} = (0, 14, 3, 1)$ lies on line ℓ_6
 22 : $P_{17665} = (0, 19, 3, 1)$ lies on line ℓ_7
 23 : $P_{18202} = (25, 27, 3, 1)$ lies on line ℓ_8
 24 : $P_{18369} = (0, 30, 3, 1)$ lies on line ℓ_3
 25 : $P_{18657} = (32, 34, 3, 1)$ lies on line ℓ_5
 26 : $P_{20156} = (59, 57, 3, 1)$ lies on line ℓ_4
 27 : $P_{21070} = (13, 8, 4, 1)$ lies on line ℓ_4
 28 : $P_{21842} = (17, 20, 4, 1)$ lies on line ℓ_8
 29 : $P_{22273} = (0, 27, 4, 1)$ lies on line ℓ_7
 30 : $P_{22362} = (25, 28, 4, 1)$ lies on line ℓ_5
 31 : $P_{23105} = (0, 40, 4, 1)$ lies on line ℓ_3
 32 : $P_{24065} = (0, 55, 4, 1)$ lies on line ℓ_6
 33 : $P_{24840} = (7, 3, 5, 1)$ lies on line ℓ_4
 34 : $P_{25793} = (0, 18, 5, 1)$ lies on line ℓ_6
 35 : $P_{26817} = (0, 34, 5, 1)$ lies on line ℓ_3
 36 : $P_{28033} = (0, 53, 5, 1)$ lies on line ℓ_7
 37 : $P_{28285} = (60, 56, 5, 1)$ lies on line ℓ_5
 38 : $P_{28480} = (63, 59, 5, 1)$ lies on line ℓ_8
 39 : $P_{30529} = (0, 28, 6, 1)$ lies on line ℓ_6
 40 : $P_{30682} = (25, 30, 6, 1)$ lies on line ℓ_4
 41 : $P_{31169} = (0, 38, 6, 1)$ lies on line ℓ_7
 42 : $P_{31533} = (44, 43, 6, 1)$ lies on line ℓ_8
 43 : $P_{32179} = (50, 53, 6, 1)$ lies on line ℓ_5
 44 : $P_{32577} = (0, 60, 6, 1)$ lies on line ℓ_3
 45 : $P_{33091} = (2, 4, 7, 1)$ lies on line ℓ_8
 46 : $P_{33345} = (0, 8, 7, 1)$ lies on line ℓ_7
 47 : $P_{33944} = (23, 17, 7, 1)$ lies on line ℓ_5
 48 : $P_{34196} = (19, 21, 7, 1)$ lies on line ℓ_4
 49 : $P_{36289} = (0, 54, 7, 1)$ lies on line ℓ_3
 50 : $P_{36481} = (0, 57, 7, 1)$ lies on line ℓ_6
 51 : $P_{37889} = (0, 15, 8, 1)$ lies on line ℓ_6
 52 : $P_{38805} = (20, 29, 8, 1)$ lies on line ℓ_4
 53 : $P_{39522} = (33, 40, 8, 1)$ lies on line ℓ_5
 54 : $P_{40065} = (0, 49, 8, 1)$ lies on line ℓ_3
 55 : $P_{40381} = (60, 53, 8, 1)$ lies on line ℓ_8
 56 : $P_{40385} = (0, 54, 8, 1)$ lies on line ℓ_7
 57 : $P_{41797} = (4, 12, 9, 1)$ lies on line ℓ_5
 58 : $P_{42463} = (30, 22, 9, 1)$ lies on line ℓ_4
 59 : $P_{42561} = (0, 24, 9, 1)$ lies on line ℓ_7

60 : $P_{42707} = (18, 26, 9, 1)$ lies on line ℓ_8
 61 : $P_{43713} = (0, 42, 9, 1)$ lies on line ℓ_6
 62 : $P_{44801} = (0, 59, 9, 1)$ lies on line ℓ_3
 63 : $P_{45195} = (10, 1, 10, 1)$ lies on line ℓ_5
 64 : $P_{45762} = (1, 10, 10, 1)$ lies on line ℓ_8
 65 : $P_{47425} = (0, 36, 10, 1)$ lies on line ℓ_6
 66 : $P_{47489} = (0, 37, 10, 1)$ lies on line ℓ_3
 67 : $P_{49227} = (10, 0, 11, 1)$ lies on line ℓ_4
 68 : $P_{49281} = (0, 1, 11, 1)$ lies on line ℓ_6
 69 : $P_{51586} = (1, 37, 11, 1)$ lies on line ℓ_0
 70 : $P_{51587} = (2, 37, 11, 1)$ lies on line ℓ_0
 71 : $P_{51588} = (3, 37, 11, 1)$ lies on line ℓ_0
 72 : $P_{51589} = (4, 37, 11, 1)$ lies on line ℓ_0
 73 : $P_{51590} = (5, 37, 11, 1)$ lies on line ℓ_0
 74 : $P_{51591} = (6, 37, 11, 1)$ lies on line ℓ_0
 75 : $P_{51592} = (7, 37, 11, 1)$ lies on line ℓ_0
 76 : $P_{51593} = (8, 37, 11, 1)$ lies on line ℓ_0
 77 : $P_{51594} = (9, 37, 11, 1)$ lies on line ℓ_0
 78 : $P_{51595} = (10, 37, 11, 1)$ lies on line ℓ_0
 79 : $P_{51596} = (11, 37, 11, 1)$ lies on line ℓ_0
 80 : $P_{51597} = (12, 37, 11, 1)$ lies on line ℓ_0
 81 : $P_{51598} = (13, 37, 11, 1)$ lies on line ℓ_0
 82 : $P_{51599} = (14, 37, 11, 1)$ lies on line ℓ_0
 83 : $P_{51600} = (15, 37, 11, 1)$ lies on line ℓ_0
 84 : $P_{51601} = (16, 37, 11, 1)$ lies on line ℓ_0
 85 : $P_{51602} = (17, 37, 11, 1)$ lies on line ℓ_0
 86 : $P_{51603} = (18, 37, 11, 1)$ lies on line ℓ_0
 87 : $P_{51604} = (19, 37, 11, 1)$ lies on line ℓ_0
 88 : $P_{51605} = (20, 37, 11, 1)$ lies on line ℓ_0
 89 : $P_{51606} = (21, 37, 11, 1)$ lies on line ℓ_0
 90 : $P_{51607} = (22, 37, 11, 1)$ lies on line ℓ_0
 91 : $P_{51608} = (23, 37, 11, 1)$ lies on line ℓ_0
 92 : $P_{51609} = (24, 37, 11, 1)$ lies on line ℓ_0
 93 : $P_{51610} = (25, 37, 11, 1)$ lies on line ℓ_0
 94 : $P_{51611} = (26, 37, 11, 1)$ lies on line ℓ_0
 95 : $P_{51612} = (27, 37, 11, 1)$ lies on line ℓ_0
 96 : $P_{51613} = (28, 37, 11, 1)$ lies on line ℓ_0
 97 : $P_{51614} = (29, 37, 11, 1)$ lies on line ℓ_0
 98 : $P_{51615} = (30, 37, 11, 1)$ lies on line ℓ_0
 99 : $P_{51616} = (31, 37, 11, 1)$ lies on line ℓ_0
 100 : $P_{51617} = (32, 37, 11, 1)$ lies on line ℓ_0
 101 : $P_{51618} = (33, 37, 11, 1)$ lies on line ℓ_0
 102 : $P_{51619} = (34, 37, 11, 1)$ lies on line ℓ_0
 103 : $P_{51620} = (35, 37, 11, 1)$ lies on line ℓ_0
 104 : $P_{51621} = (36, 37, 11, 1)$ lies on line ℓ_0
 105 : $P_{51622} = (37, 37, 11, 1)$ lies on line ℓ_0
 106 : $P_{51623} = (38, 37, 11, 1)$ lies on line ℓ_0
 107 : $P_{51624} = (39, 37, 11, 1)$ lies on line ℓ_0
 108 : $P_{51625} = (40, 37, 11, 1)$ lies on line ℓ_0
 109 : $P_{51626} = (41, 37, 11, 1)$ lies on line ℓ_0
 110 : $P_{51627} = (42, 37, 11, 1)$ lies on line ℓ_0
 111 : $P_{51628} = (43, 37, 11, 1)$ lies on line ℓ_0
 112 : $P_{51629} = (44, 37, 11, 1)$ lies on line ℓ_0
 113 : $P_{51630} = (45, 37, 11, 1)$ lies on line ℓ_0

114 : $P_{51631} = (46, 37, 11, 1)$ lies on line ℓ_0
 115 : $P_{51633} = (48, 37, 11, 1)$ lies on line ℓ_0
 116 : $P_{51634} = (49, 37, 11, 1)$ lies on line ℓ_0
 117 : $P_{51635} = (50, 37, 11, 1)$ lies on line ℓ_0
 118 : $P_{51636} = (51, 37, 11, 1)$ lies on line ℓ_0
 119 : $P_{51637} = (52, 37, 11, 1)$ lies on line ℓ_0
 120 : $P_{51638} = (53, 37, 11, 1)$ lies on line ℓ_0
 121 : $P_{51639} = (54, 37, 11, 1)$ lies on line ℓ_0
 122 : $P_{51640} = (55, 37, 11, 1)$ lies on line ℓ_0
 123 : $P_{51641} = (56, 37, 11, 1)$ lies on line ℓ_0
 124 : $P_{51642} = (57, 37, 11, 1)$ lies on line ℓ_0
 125 : $P_{51643} = (58, 37, 11, 1)$ lies on line ℓ_0
 126 : $P_{51644} = (59, 37, 11, 1)$ lies on line ℓ_0
 127 : $P_{51645} = (60, 37, 11, 1)$ lies on line ℓ_0
 128 : $P_{51646} = (61, 37, 11, 1)$ lies on line ℓ_0
 129 : $P_{51647} = (62, 37, 11, 1)$ lies on line ℓ_0
 130 : $P_{51648} = (63, 37, 11, 1)$ lies on line ℓ_0
 131 : $P_{52225} = (0, 47, 11, 1)$ lies on line ℓ_3
 132 : $P_{54913} = (0, 25, 12, 1)$ lies on line ℓ_3
 133 : $P_{55063} = (22, 27, 12, 1)$ lies on line ℓ_5
 134 : $P_{56040} = (39, 42, 12, 1)$ lies on line ℓ_8
 135 : $P_{56193} = (0, 45, 12, 1)$ lies on line ℓ_7
 136 : $P_{56509} = (60, 49, 12, 1)$ lies on line ℓ_4
 137 : $P_{56897} = (0, 56, 12, 1)$ lies on line ℓ_6
 138 : $P_{57601} = (0, 3, 13, 1)$ lies on line ℓ_7
 139 : $P_{57738} = (9, 5, 13, 1)$ lies on line ℓ_8
 140 : $P_{58625} = (0, 19, 13, 1)$ lies on line ℓ_3
 141 : $P_{59265} = (0, 29, 13, 1)$ lies on line ℓ_6
 142 : $P_{61175} = (54, 58, 13, 1)$ lies on line ℓ_4
 143 : $P_{61492} = (51, 63, 13, 1)$ lies on line ℓ_5
 144 : $P_{62337} = (0, 13, 14, 1)$ lies on line ℓ_3
 145 : $P_{62529} = (0, 16, 14, 1)$ lies on line ℓ_7
 146 : $P_{62721} = (0, 19, 14, 1)$ lies on line ℓ_6
 147 : $P_{62875} = (26, 21, 14, 1)$ lies on line ℓ_8
 148 : $P_{64041} = (40, 39, 14, 1)$ lies on line ℓ_4
 149 : $P_{64766} = (61, 50, 14, 1)$ lies on line ℓ_5
 150 : $P_{66049} = (0, 7, 15, 1)$ lies on line ℓ_3
 151 : $P_{67033} = (24, 22, 15, 1)$ lies on line ℓ_5
 152 : $P_{68451} = (34, 44, 15, 1)$ lies on line ℓ_4
 153 : $P_{69057} = (0, 54, 15, 1)$ lies on line ℓ_6
 154 : $P_{69365} = (52, 58, 15, 1)$ lies on line ℓ_8
 155 : $P_{69569} = (0, 62, 15, 1)$ lies on line ℓ_7
 156 : $P_{69889} = (0, 3, 16, 1)$ lies on line ℓ_3
 157 : $P_{70529} = (0, 13, 16, 1)$ lies on line ℓ_7
 158 : $P_{71112} = (7, 22, 16, 1)$ lies on line ℓ_8
 159 : $P_{71617} = (0, 30, 16, 1)$ lies on line ℓ_6
 160 : $P_{71857} = (48, 33, 16, 1)$ lies on line ℓ_5
 161 : $P_{73255} = (38, 55, 16, 1)$ lies on line ℓ_4
 162 : $P_{74134} = (21, 5, 17, 1)$ lies on line ℓ_5
 163 : $P_{74369} = (0, 9, 17, 1)$ lies on line ℓ_3
 164 : $P_{76033} = (0, 35, 17, 1)$ lies on line ℓ_7
 165 : $P_{77482} = (41, 57, 17, 1)$ lies on line ℓ_8
 166 : $P_{77569} = (0, 59, 17, 1)$ lies on line ℓ_6
 167 : $P_{77677} = (44, 60, 17, 1)$ lies on line ℓ_4
 168 : $P_{78428} = (27, 8, 18, 1)$ lies on line ℓ_5
 169 : $P_{79361} = (0, 23, 18, 1)$ lies on line ℓ_3
 170 : $P_{80051} = (50, 33, 18, 1)$ lies on line ℓ_4
 171 : $P_{80571} = (58, 41, 18, 1)$ lies on line ℓ_8
 172 : $P_{80961} = (0, 48, 18, 1)$ lies on line ℓ_7
 173 : $P_{81281} = (0, 53, 18, 1)$ lies on line ℓ_6
 174 : $P_{82389} = (20, 6, 19, 1)$ lies on line ℓ_8
 175 : $P_{83009} = (0, 16, 19, 1)$ lies on line ℓ_6
 176 : $P_{83841} = (0, 29, 19, 1)$ lies on line ℓ_3
 177 : $P_{83905} = (0, 30, 19, 1)$ lies on line ℓ_7
 178 : $P_{84729} = (56, 42, 19, 1)$ lies on line ℓ_4
 179 : $P_{84863} = (62, 44, 19, 1)$ lies on line ℓ_5
 180 : $P_{86685} = (28, 9, 20, 1)$ lies on line ℓ_8
 181 : $P_{87240} = (7, 18, 20, 1)$ lies on line ℓ_5
 182 : $P_{87489} = (0, 22, 20, 1)$ lies on line ℓ_7
 183 : $P_{87823} = (14, 27, 20, 1)$ lies on line ℓ_4
 184 : $P_{88705} = (0, 41, 20, 1)$ lies on line ℓ_6
 185 : $P_{88833} = (0, 43, 20, 1)$ lies on line ℓ_3
 186 : $P_{90945} = (0, 12, 21, 1)$ lies on line ℓ_6
 187 : $P_{91205} = (4, 16, 21, 1)$ lies on line ℓ_4
 188 : $P_{92289} = (0, 33, 21, 1)$ lies on line ℓ_3
 189 : $P_{92659} = (50, 38, 21, 1)$ lies on line ℓ_8
 190 : $P_{93667} = (34, 54, 21, 1)$ lies on line ℓ_5
 191 : $P_{93761} = (0, 56, 21, 1)$ lies on line ℓ_7
 192 : $P_{94401} = (0, 2, 22, 1)$ lies on line ℓ_6
 193 : $P_{95131} = (26, 13, 22, 1)$ lies on line ℓ_4
 194 : $P_{97025} = (0, 43, 22, 1)$ lies on line ℓ_7
 195 : $P_{97762} = (33, 54, 22, 1)$ lies on line ℓ_8
 196 : $P_{98093} = (44, 59, 22, 1)$ lies on line ℓ_5
 197 : $P_{98305} = (0, 63, 22, 1)$ lies on line ℓ_3
 198 : $P_{98689} = (0, 5, 23, 1)$ lies on line ℓ_7
 199 : $P_{98769} = (16, 6, 23, 1)$ lies on line ℓ_4
 200 : $P_{99984} = (15, 25, 23, 1)$ lies on line ℓ_8
 201 : $P_{100362} = (9, 31, 23, 1)$ lies on line ℓ_5
 202 : $P_{100865} = (0, 39, 23, 1)$ lies on line ℓ_6
 203 : $P_{101761} = (0, 53, 23, 1)$ lies on line ℓ_3
 204 : $P_{103384} = (23, 14, 24, 1)$ lies on line ℓ_4
 205 : $P_{103553} = (0, 17, 24, 1)$ lies on line ℓ_6
 206 : $P_{104960} = (63, 38, 24, 1)$ lies on line ℓ_5
 207 : $P_{105074} = (49, 40, 24, 1)$ lies on line ℓ_8
 208 : $P_{105665} = (0, 50, 24, 1)$ lies on line ℓ_3
 209 : $P_{106241} = (0, 59, 24, 1)$ lies on line ℓ_7
 210 : $P_{106715} = (26, 2, 25, 1)$ lies on line ℓ_5
 211 : $P_{106910} = (29, 5, 25, 1)$ lies on line ℓ_4
 212 : $P_{107040} = (31, 7, 25, 1)$ lies on line ℓ_8
 213 : $P_{107905} = (0, 21, 25, 1)$ lies on line ℓ_7
 214 : $P_{109889} = (0, 52, 25, 1)$ lies on line ℓ_6
 215 : $P_{110145} = (0, 56, 25, 1)$ lies on line ℓ_3
 216 : $P_{111041} = (0, 6, 26, 1)$ lies on line ℓ_7
 217 : $P_{111637} = (20, 15, 26, 1)$ lies on line ℓ_5
 218 : $P_{112141} = (12, 23, 26, 1)$ lies on line ℓ_8
 219 : $P_{112196} = (3, 24, 26, 1)$ lies on line ℓ_4
 220 : $P_{113089} = (0, 38, 26, 1)$ lies on line ℓ_3
 221 : $P_{114369} = (0, 58, 26, 1)$ lies on line ℓ_6

222 : $P_{115978} = (9, 19, 27, 1)$ lies on line ℓ_4
 223 : $P_{116737} = (0, 31, 27, 1)$ lies on line ℓ_6
 224 : $P_{117313} = (0, 40, 27, 1)$ lies on line ℓ_7
 225 : $P_{117554} = (49, 43, 27, 1)$ lies on line ℓ_5
 226 : $P_{117569} = (0, 44, 27, 1)$ lies on line ℓ_3
 227 : $P_{118371} = (34, 56, 27, 1)$ lies on line ℓ_8
 228 : $P_{120201} = (8, 21, 28, 1)$ lies on line ℓ_5
 229 : $P_{120513} = (0, 26, 28, 1)$ lies on line ℓ_3
 230 : $P_{120897} = (0, 32, 28, 1)$ lies on line ℓ_7
 231 : $P_{121088} = (63, 34, 28, 1)$ lies on line ℓ_4
 232 : $P_{121281} = (0, 38, 28, 1)$ lies on line ℓ_6
 233 : $P_{122411} = (42, 55, 28, 1)$ lies on line ℓ_8
 234 : $P_{123137} = (0, 3, 29, 1)$ lies on line ℓ_6
 235 : $P_{123841} = (0, 14, 29, 1)$ lies on line ℓ_7
 236 : $P_{123969} = (0, 16, 29, 1)$ lies on line ℓ_3
 237 : $P_{124485} = (4, 24, 29, 1)$ lies on line ℓ_8
 238 : $P_{125622} = (53, 41, 29, 1)$ lies on line ℓ_4
 239 : $P_{126126} = (45, 49, 29, 1)$ lies on line ℓ_5
 240 : $P_{127576} = (23, 8, 30, 1)$ lies on line ℓ_8
 241 : $P_{127873} = (0, 13, 30, 1)$ lies on line ℓ_6
 242 : $P_{127937} = (0, 14, 30, 1)$ lies on line ℓ_3
 243 : $P_{128897} = (0, 29, 30, 1)$ lies on line ℓ_7
 244 : $P_{130412} = (43, 52, 30, 1)$ lies on line ℓ_4
 245 : $P_{130916} = (35, 60, 30, 1)$ lies on line ℓ_5
 246 : $P_{131393} = (0, 4, 31, 1)$ lies on line ℓ_3
 247 : $P_{132679} = (6, 24, 31, 1)$ lies on line ℓ_5
 248 : $P_{133690} = (57, 39, 31, 1)$ lies on line ℓ_8
 249 : $P_{133697} = (0, 40, 31, 1)$ lies on line ℓ_6
 250 : $P_{134401} = (0, 51, 31, 1)$ lies on line ℓ_7
 251 : $P_{135202} = (33, 63, 31, 1)$ lies on line ℓ_4
 252 : $P_{135396} = (35, 2, 32, 1)$ lies on line ℓ_4
 253 : $P_{135617} = (0, 6, 32, 1)$ lies on line ℓ_3
 254 : $P_{136897} = (0, 26, 32, 1)$ lies on line ℓ_7
 255 : $P_{138385} = (16, 49, 32, 1)$ lies on line ℓ_8
 256 : $P_{138515} = (18, 51, 32, 1)$ lies on line ℓ_5
 257 : $P_{139073} = (0, 60, 32, 1)$ lies on line ℓ_6
 258 : $P_{139946} = (41, 9, 33, 1)$ lies on line ℓ_4
 259 : $P_{140097} = (0, 12, 33, 1)$ lies on line ℓ_3
 260 : $P_{140856} = (55, 23, 33, 1)$ lies on line ℓ_5
 261 : $P_{140929} = (0, 25, 33, 1)$ lies on line ℓ_6
 262 : $P_{141311} = (62, 30, 33, 1)$ lies on line ℓ_8
 263 : $P_{142657} = (0, 52, 33, 1)$ lies on line ℓ_7
 264 : $P_{144366} = (45, 14, 34, 1)$ lies on line ℓ_8
 265 : $P_{144577} = (0, 18, 34, 1)$ lies on line ℓ_3
 266 : $P_{144760} = (55, 20, 34, 1)$ lies on line ℓ_4
 267 : $P_{144897} = (0, 23, 34, 1)$ lies on line ℓ_6
 268 : $P_{145146} = (57, 26, 34, 1)$ lies on line ℓ_5
 269 : $P_{145921} = (0, 39, 34, 1)$ lies on line ℓ_7
 270 : $P_{148097} = (0, 9, 35, 1)$ lies on line ℓ_7
 271 : $P_{149057} = (0, 24, 35, 1)$ lies on line ℓ_3
 272 : $P_{149566} = (61, 31, 35, 1)$ lies on line ℓ_4
 273 : $P_{149636} = (3, 33, 35, 1)$ lies on line ℓ_8
 274 : $P_{150721} = (0, 50, 35, 1)$ lies on line ℓ_6
 275 : $P_{151517} = (28, 62, 35, 1)$ lies on line ℓ_5

276 : $P_{151654} = (37, 0, 36, 1)$ lies on line ℓ_5
 277 : $P_{151681} = (0, 1, 36, 1)$ lies on line ℓ_7
 278 : $P_{152321} = (0, 11, 36, 1)$ lies on line ℓ_6
 279 : $P_{154562} = (1, 46, 36, 1)$ lies on line ℓ_1
 280 : $P_{154563} = (2, 46, 36, 1)$ lies on line ℓ_1
 281 : $P_{154564} = (3, 46, 36, 1)$ lies on line ℓ_1
 282 : $P_{154565} = (4, 46, 36, 1)$ lies on line ℓ_1
 283 : $P_{154566} = (5, 46, 36, 1)$ lies on line ℓ_1
 284 : $P_{154567} = (6, 46, 36, 1)$ lies on line ℓ_1
 285 : $P_{154568} = (7, 46, 36, 1)$ lies on line ℓ_1
 286 : $P_{154569} = (8, 46, 36, 1)$ lies on line ℓ_1
 287 : $P_{154570} = (9, 46, 36, 1)$ lies on line ℓ_1
 288 : $P_{154571} = (10, 46, 36, 1)$ lies on line ℓ_1
 289 : $P_{154573} = (12, 46, 36, 1)$ lies on line ℓ_1
 290 : $P_{154574} = (13, 46, 36, 1)$ lies on line ℓ_1
 291 : $P_{154575} = (14, 46, 36, 1)$ lies on line ℓ_1
 292 : $P_{154576} = (15, 46, 36, 1)$ lies on line ℓ_1
 293 : $P_{154577} = (16, 46, 36, 1)$ lies on line ℓ_1
 294 : $P_{154578} = (17, 46, 36, 1)$ lies on line ℓ_1
 295 : $P_{154579} = (18, 46, 36, 1)$ lies on line ℓ_1
 296 : $P_{154580} = (19, 46, 36, 1)$ lies on line ℓ_1
 297 : $P_{154581} = (20, 46, 36, 1)$ lies on line ℓ_1
 298 : $P_{154582} = (21, 46, 36, 1)$ lies on line ℓ_1
 299 : $P_{154583} = (22, 46, 36, 1)$ lies on line ℓ_1
 300 : $P_{154584} = (23, 46, 36, 1)$ lies on line ℓ_1
 301 : $P_{154585} = (24, 46, 36, 1)$ lies on line ℓ_1
 302 : $P_{154586} = (25, 46, 36, 1)$ lies on line ℓ_1
 303 : $P_{154587} = (26, 46, 36, 1)$ lies on line ℓ_1
 304 : $P_{154588} = (27, 46, 36, 1)$ lies on line ℓ_1
 305 : $P_{154589} = (28, 46, 36, 1)$ lies on line ℓ_1
 306 : $P_{154590} = (29, 46, 36, 1)$ lies on line ℓ_1
 307 : $P_{154591} = (30, 46, 36, 1)$ lies on line ℓ_1
 308 : $P_{154592} = (31, 46, 36, 1)$ lies on line ℓ_1
 309 : $P_{154593} = (32, 46, 36, 1)$ lies on line ℓ_1
 310 : $P_{154594} = (33, 46, 36, 1)$ lies on line ℓ_1
 311 : $P_{154595} = (34, 46, 36, 1)$ lies on line ℓ_1
 312 : $P_{154596} = (35, 46, 36, 1)$ lies on line ℓ_1
 313 : $P_{154597} = (36, 46, 36, 1)$ lies on line ℓ_1
 314 : $P_{154598} = (37, 46, 36, 1)$ lies on line ℓ_1
 315 : $P_{154599} = (38, 46, 36, 1)$ lies on line ℓ_1
 316 : $P_{154600} = (39, 46, 36, 1)$ lies on line ℓ_1
 317 : $P_{154601} = (40, 46, 36, 1)$ lies on line ℓ_1
 318 : $P_{154602} = (41, 46, 36, 1)$ lies on line ℓ_1
 319 : $P_{154603} = (42, 46, 36, 1)$ lies on line ℓ_1
 320 : $P_{154604} = (43, 46, 36, 1)$ lies on line ℓ_1
 321 : $P_{154605} = (44, 46, 36, 1)$ lies on line ℓ_1
 322 : $P_{154606} = (45, 46, 36, 1)$ lies on line ℓ_1
 323 : $P_{154607} = (46, 46, 36, 1)$ lies on line ℓ_1
 324 : $P_{154608} = (47, 46, 36, 1)$ lies on line ℓ_1
 325 : $P_{154609} = (48, 46, 36, 1)$ lies on line ℓ_1
 326 : $P_{154610} = (49, 46, 36, 1)$ lies on line ℓ_1
 327 : $P_{154611} = (50, 46, 36, 1)$ lies on line ℓ_1
 328 : $P_{154612} = (51, 46, 36, 1)$ lies on line ℓ_1
 329 : $P_{154613} = (52, 46, 36, 1)$ lies on line ℓ_1

330 : $P_{154614} = (53, 46, 36, 1)$ lies on line ℓ_1
 331 : $P_{154615} = (54, 46, 36, 1)$ lies on line ℓ_1
 332 : $P_{154616} = (55, 46, 36, 1)$ lies on line ℓ_1
 333 : $P_{154617} = (56, 46, 36, 1)$ lies on line ℓ_1
 334 : $P_{154618} = (57, 46, 36, 1)$ lies on line ℓ_1
 335 : $P_{154619} = (58, 46, 36, 1)$ lies on line ℓ_1
 336 : $P_{154620} = (59, 46, 36, 1)$ lies on line ℓ_1
 337 : $P_{154621} = (60, 46, 36, 1)$ lies on line ℓ_1
 338 : $P_{154622} = (61, 46, 36, 1)$ lies on line ℓ_1
 339 : $P_{154623} = (62, 46, 36, 1)$ lies on line ℓ_1
 340 : $P_{154624} = (63, 46, 36, 1)$ lies on line ℓ_1
 341 : $P_{155814} = (37, 1, 37, 1)$ lies on line ℓ_8
 342 : $P_{158082} = (1, 37, 37, 1)$ lies on line ℓ_4
 343 : $P_{158657} = (0, 46, 37, 1)$ lies on line ℓ_6
 344 : $P_{158721} = (0, 47, 37, 1)$ lies on line ℓ_7
 345 : $P_{160951} = (54, 17, 38, 1)$ lies on line ℓ_8
 346 : $P_{161857} = (0, 32, 38, 1)$ lies on line ℓ_6
 347 : $P_{162447} = (14, 41, 38, 1)$ lies on line ℓ_5
 348 : $P_{163424} = (31, 56, 38, 1)$ lies on line ℓ_4
 349 : $P_{163521} = (0, 58, 38, 1)$ lies on line ℓ_3
 350 : $P_{163649} = (0, 60, 38, 1)$ lies on line ℓ_7
 351 : $P_{164225} = (0, 5, 39, 1)$ lies on line ℓ_6
 352 : $P_{164780} = (43, 13, 39, 1)$ lies on line ℓ_5
 353 : $P_{165057} = (0, 18, 39, 1)$ lies on line ℓ_7
 354 : $P_{166977} = (0, 48, 39, 1)$ lies on line ℓ_3
 355 : $P_{167190} = (21, 51, 39, 1)$ lies on line ℓ_4
 356 : $P_{167897} = (24, 62, 39, 1)$ lies on line ℓ_8
 357 : $P_{168999} = (38, 15, 40, 1)$ lies on line ℓ_8
 358 : $P_{170817} = (0, 44, 40, 1)$ lies on line ℓ_7
 359 : $P_{171265} = (0, 51, 40, 1)$ lies on line ℓ_6
 360 : $P_{171358} = (29, 52, 40, 1)$ lies on line ℓ_5
 361 : $P_{171521} = (0, 55, 40, 1)$ lies on line ℓ_3
 362 : $P_{171795} = (18, 59, 40, 1)$ lies on line ℓ_4
 363 : $P_{172225} = (0, 2, 41, 1)$ lies on line ℓ_7
 364 : $P_{173177} = (56, 16, 41, 1)$ lies on line ℓ_5
 365 : $P_{173505} = (0, 22, 41, 1)$ lies on line ℓ_6
 366 : $P_{174153} = (8, 32, 41, 1)$ lies on line ℓ_8
 367 : $P_{175193} = (24, 48, 41, 1)$ lies on line ℓ_4
 368 : $P_{176001} = (0, 61, 41, 1)$ lies on line ℓ_3
 369 : $P_{177281} = (0, 17, 42, 1)$ lies on line ℓ_7
 370 : $P_{177729} = (0, 24, 42, 1)$ lies on line ℓ_6
 371 : $P_{178103} = (54, 29, 42, 1)$ lies on line ℓ_5
 372 : $P_{178433} = (0, 35, 42, 1)$ lies on line ℓ_3
 373 : $P_{179079} = (6, 45, 42, 1)$ lies on line ℓ_4
 374 : $P_{179292} = (27, 48, 42, 1)$ lies on line ℓ_8
 375 : $P_{182326} = (53, 31, 43, 1)$ lies on line ℓ_8
 376 : $P_{182733} = (12, 38, 43, 1)$ lies on line ℓ_4
 377 : $P_{182913} = (0, 41, 43, 1)$ lies on line ℓ_3
 378 : $P_{183956} = (19, 57, 43, 1)$ lies on line ℓ_5
 379 : $P_{184193} = (0, 61, 43, 1)$ lies on line ℓ_6
 380 : $P_{184321} = (0, 63, 43, 1)$ lies on line ℓ_7
 381 : $P_{184641} = (0, 4, 44, 1)$ lies on line ℓ_6
 382 : $P_{184875} = (42, 7, 44, 1)$ lies on line ℓ_5
 383 : $P_{185470} = (61, 16, 44, 1)$ lies on line ℓ_8
 384 : $P_{185915} = (58, 23, 44, 1)$ lies on line ℓ_4
 385 : $P_{186369} = (0, 31, 44, 1)$ lies on line ℓ_3
 386 : $P_{187905} = (0, 55, 44, 1)$ lies on line ℓ_7
 387 : $P_{189825} = (0, 21, 45, 1)$ lies on line ℓ_3
 388 : $P_{190081} = (0, 25, 45, 1)$ lies on line ℓ_7
 389 : $P_{190321} = (48, 28, 45, 1)$ lies on line ℓ_4
 390 : $P_{190593} = (0, 33, 45, 1)$ lies on line ℓ_6
 391 : $P_{190736} = (15, 35, 45, 1)$ lies on line ℓ_5
 392 : $P_{192532} = (19, 63, 45, 1)$ lies on line ℓ_8
 393 : $P_{192687} = (46, 1, 46, 1)$ lies on line ℓ_4
 394 : $P_{193217} = (0, 10, 46, 1)$ lies on line ℓ_7
 395 : $P_{193281} = (0, 11, 46, 1)$ lies on line ℓ_3
 396 : $P_{195522} = (1, 46, 46, 1)$ lies on line ℓ_5
 397 : $P_{196719} = (46, 0, 47, 1)$ lies on line ℓ_8
 398 : $P_{196737} = (0, 1, 47, 1)$ lies on line ℓ_3
 399 : $P_{197314} = (1, 10, 47, 1)$ lies on line ℓ_2
 400 : $P_{197315} = (2, 10, 47, 1)$ lies on line ℓ_2
 401 : $P_{197316} = (3, 10, 47, 1)$ lies on line ℓ_2
 402 : $P_{197317} = (4, 10, 47, 1)$ lies on line ℓ_2
 403 : $P_{197318} = (5, 10, 47, 1)$ lies on line ℓ_2
 404 : $P_{197319} = (6, 10, 47, 1)$ lies on line ℓ_2
 405 : $P_{197320} = (7, 10, 47, 1)$ lies on line ℓ_2
 406 : $P_{197321} = (8, 10, 47, 1)$ lies on line ℓ_2
 407 : $P_{197322} = (9, 10, 47, 1)$ lies on line ℓ_2
 408 : $P_{197323} = (10, 10, 47, 1)$ lies on line ℓ_2
 409 : $P_{197324} = (11, 10, 47, 1)$ lies on line ℓ_2
 410 : $P_{197325} = (12, 10, 47, 1)$ lies on line ℓ_2
 411 : $P_{197326} = (13, 10, 47, 1)$ lies on line ℓ_2
 412 : $P_{197327} = (14, 10, 47, 1)$ lies on line ℓ_2
 413 : $P_{197328} = (15, 10, 47, 1)$ lies on line ℓ_2
 414 : $P_{197329} = (16, 10, 47, 1)$ lies on line ℓ_2
 415 : $P_{197330} = (17, 10, 47, 1)$ lies on line ℓ_2
 416 : $P_{197331} = (18, 10, 47, 1)$ lies on line ℓ_2
 417 : $P_{197332} = (19, 10, 47, 1)$ lies on line ℓ_2
 418 : $P_{197333} = (20, 10, 47, 1)$ lies on line ℓ_2
 419 : $P_{197334} = (21, 10, 47, 1)$ lies on line ℓ_2
 420 : $P_{197335} = (22, 10, 47, 1)$ lies on line ℓ_2
 421 : $P_{197336} = (23, 10, 47, 1)$ lies on line ℓ_2
 422 : $P_{197337} = (24, 10, 47, 1)$ lies on line ℓ_2
 423 : $P_{197338} = (25, 10, 47, 1)$ lies on line ℓ_2
 424 : $P_{197339} = (26, 10, 47, 1)$ lies on line ℓ_2
 425 : $P_{197340} = (27, 10, 47, 1)$ lies on line ℓ_2
 426 : $P_{197341} = (28, 10, 47, 1)$ lies on line ℓ_2
 427 : $P_{197342} = (29, 10, 47, 1)$ lies on line ℓ_2
 428 : $P_{197343} = (30, 10, 47, 1)$ lies on line ℓ_2
 429 : $P_{197344} = (31, 10, 47, 1)$ lies on line ℓ_2
 430 : $P_{197345} = (32, 10, 47, 1)$ lies on line ℓ_2
 431 : $P_{197346} = (33, 10, 47, 1)$ lies on line ℓ_2
 432 : $P_{197347} = (34, 10, 47, 1)$ lies on line ℓ_2
 433 : $P_{197348} = (35, 10, 47, 1)$ lies on line ℓ_2
 434 : $P_{197350} = (37, 10, 47, 1)$ lies on line ℓ_2
 435 : $P_{197351} = (38, 10, 47, 1)$ lies on line ℓ_2
 436 : $P_{197352} = (39, 10, 47, 1)$ lies on line ℓ_2
 437 : $P_{197353} = (40, 10, 47, 1)$ lies on line ℓ_2

438 : $P_{197354} = (41, 10, 47, 1)$ lies on line ℓ_2
 439 : $P_{197355} = (42, 10, 47, 1)$ lies on line ℓ_2
 440 : $P_{197356} = (43, 10, 47, 1)$ lies on line ℓ_2
 441 : $P_{197357} = (44, 10, 47, 1)$ lies on line ℓ_2
 442 : $P_{197358} = (45, 10, 47, 1)$ lies on line ℓ_2
 443 : $P_{197359} = (46, 10, 47, 1)$ lies on line ℓ_2
 444 : $P_{197360} = (47, 10, 47, 1)$ lies on line ℓ_2
 445 : $P_{197361} = (48, 10, 47, 1)$ lies on line ℓ_2
 446 : $P_{197362} = (49, 10, 47, 1)$ lies on line ℓ_2
 447 : $P_{197363} = (50, 10, 47, 1)$ lies on line ℓ_2
 448 : $P_{197364} = (51, 10, 47, 1)$ lies on line ℓ_2
 449 : $P_{197365} = (52, 10, 47, 1)$ lies on line ℓ_2
 450 : $P_{197366} = (53, 10, 47, 1)$ lies on line ℓ_2
 451 : $P_{197367} = (54, 10, 47, 1)$ lies on line ℓ_2
 452 : $P_{197368} = (55, 10, 47, 1)$ lies on line ℓ_2
 453 : $P_{197369} = (56, 10, 47, 1)$ lies on line ℓ_2
 454 : $P_{197370} = (57, 10, 47, 1)$ lies on line ℓ_2
 455 : $P_{197371} = (58, 10, 47, 1)$ lies on line ℓ_2
 456 : $P_{197372} = (59, 10, 47, 1)$ lies on line ℓ_2
 457 : $P_{197373} = (60, 10, 47, 1)$ lies on line ℓ_2
 458 : $P_{197374} = (61, 10, 47, 1)$ lies on line ℓ_2
 459 : $P_{197375} = (62, 10, 47, 1)$ lies on line ℓ_2
 460 : $P_{197376} = (63, 10, 47, 1)$ lies on line ℓ_2
 461 : $P_{198977} = (0, 36, 47, 1)$ lies on line ℓ_7
 462 : $P_{201089} = (0, 5, 48, 1)$ lies on line ℓ_3
 463 : $P_{201889} = (32, 17, 48, 1)$ lies on line ℓ_4
 464 : $P_{202241} = (0, 23, 48, 1)$ lies on line ℓ_7
 465 : $P_{202945} = (0, 34, 48, 1)$ lies on line ℓ_6
 466 : $P_{203614} = (29, 44, 48, 1)$ lies on line ℓ_8
 467 : $P_{204685} = (12, 61, 48, 1)$ lies on line ℓ_5
 468 : $P_{205108} = (51, 3, 49, 1)$ lies on line ℓ_8
 469 : $P_{205313} = (0, 7, 49, 1)$ lies on line ℓ_6
 470 : $P_{205825} = (0, 15, 49, 1)$ lies on line ℓ_3
 471 : $P_{206506} = (41, 25, 49, 1)$ lies on line ℓ_5
 472 : $P_{206571} = (42, 26, 49, 1)$ lies on line ℓ_4
 473 : $P_{208513} = (0, 57, 49, 1)$ lies on line ℓ_7
 474 : $P_{209461} = (52, 7, 50, 1)$ lies on line ℓ_4
 475 : $P_{209537} = (0, 9, 50, 1)$ lies on line ℓ_6
 476 : $P_{210049} = (0, 17, 50, 1)$ lies on line ℓ_3
 477 : $P_{210209} = (32, 19, 50, 1)$ lies on line ℓ_8
 478 : $P_{210280} = (39, 20, 50, 1)$ lies on line ℓ_5
 479 : $P_{211649} = (0, 42, 50, 1)$ lies on line ℓ_7
 480 : $P_{213313} = (0, 4, 51, 1)$ lies on line ℓ_7
 481 : $P_{213887} = (62, 12, 51, 1)$ lies on line ℓ_4
 482 : $P_{214785} = (0, 27, 51, 1)$ lies on line ℓ_3
 483 : $P_{215873} = (0, 44, 51, 1)$ lies on line ℓ_6
 484 : $P_{216131} = (2, 48, 51, 1)$ lies on line ℓ_5
 485 : $P_{216911} = (14, 60, 51, 1)$ lies on line ℓ_8
 486 : $P_{217921} = (0, 12, 52, 1)$ lies on line ℓ_7
 487 : $P_{218108} = (59, 14, 52, 1)$ lies on line ℓ_5
 488 : $P_{218497} = (0, 21, 52, 1)$ lies on line ℓ_6
 489 : $P_{220033} = (0, 45, 52, 1)$ lies on line ℓ_3
 490 : $P_{220423} = (6, 51, 52, 1)$ lies on line ℓ_8
 491 : $P_{221065} = (8, 61, 52, 1)$ lies on line ℓ_4
 492 : $P_{223081} = (40, 28, 53, 1)$ lies on line ℓ_8
 493 : $P_{223425} = (0, 34, 53, 1)$ lies on line ℓ_7
 494 : $P_{223745} = (0, 39, 53, 1)$ lies on line ℓ_3
 495 : $P_{223967} = (30, 42, 53, 1)$ lies on line ℓ_5
 496 : $P_{224321} = (0, 48, 53, 1)$ lies on line ℓ_6
 497 : $P_{224707} = (2, 54, 53, 1)$ lies on line ℓ_4
 498 : $P_{226172} = (59, 12, 54, 1)$ lies on line ℓ_8
 499 : $P_{227857} = (16, 39, 54, 1)$ lies on line ℓ_5
 500 : $P_{228125} = (28, 43, 54, 1)$ lies on line ℓ_4
 501 : $P_{228481} = (0, 49, 54, 1)$ lies on line ℓ_7
 502 : $P_{228993} = (0, 57, 54, 1)$ lies on line ℓ_3
 503 : $P_{229313} = (0, 62, 54, 1)$ lies on line ℓ_6
 504 : $P_{229686} = (53, 3, 55, 1)$ lies on line ℓ_5
 505 : $P_{231169} = (0, 27, 55, 1)$ lies on line ℓ_6
 506 : $P_{231425} = (0, 31, 55, 1)$ lies on line ℓ_7
 507 : $P_{231511} = (22, 32, 55, 1)$ lies on line ℓ_4
 508 : $P_{231702} = (21, 35, 55, 1)$ lies on line ℓ_8
 509 : $P_{232705} = (0, 51, 55, 1)$ lies on line ℓ_3
 510 : $P_{234732} = (43, 18, 56, 1)$ lies on line ℓ_8
 511 : $P_{235649} = (0, 33, 56, 1)$ lies on line ℓ_7
 512 : $P_{236114} = (17, 40, 56, 1)$ lies on line ℓ_4
 513 : $P_{236417} = (0, 45, 56, 1)$ lies on line ℓ_6
 514 : $P_{236865} = (0, 52, 56, 1)$ lies on line ℓ_3
 515 : $P_{237252} = (3, 58, 56, 1)$ lies on line ℓ_5
 516 : $P_{238145} = (0, 8, 57, 1)$ lies on line ℓ_6
 517 : $P_{238593} = (0, 15, 57, 1)$ lies on line ℓ_7
 518 : $P_{239591} = (38, 30, 57, 1)$ lies on line ℓ_5
 519 : $P_{239900} = (27, 35, 57, 1)$ lies on line ℓ_4
 520 : $P_{241542} = (5, 61, 57, 1)$ lies on line ℓ_8
 521 : $P_{241601} = (0, 62, 57, 1)$ lies on line ℓ_3
 522 : $P_{242113} = (0, 6, 58, 1)$ lies on line ℓ_6
 523 : $P_{242985} = (40, 19, 58, 1)$ lies on line ℓ_5
 524 : $P_{243521} = (0, 28, 58, 1)$ lies on line ℓ_7
 525 : $P_{243777} = (0, 32, 58, 1)$ lies on line ℓ_3
 526 : $P_{244631} = (22, 45, 58, 1)$ lies on line ℓ_8
 527 : $P_{245702} = (5, 62, 58, 1)$ lies on line ℓ_4
 528 : $P_{246009} = (56, 2, 59, 1)$ lies on line ℓ_8
 529 : $P_{248065} = (0, 35, 59, 1)$ lies on line ℓ_6
 530 : $P_{248513} = (0, 42, 59, 1)$ lies on line ℓ_3
 531 : $P_{249025} = (0, 50, 59, 1)$ lies on line ℓ_7
 532 : $P_{249232} = (15, 53, 59, 1)$ lies on line ℓ_4
 533 : $P_{249358} = (13, 55, 59, 1)$ lies on line ℓ_5
 534 : $P_{250234} = (57, 4, 60, 1)$ lies on line ℓ_4
 535 : $P_{250549} = (52, 9, 60, 1)$ lies on line ℓ_5
 536 : $P_{250801} = (48, 13, 60, 1)$ lies on line ℓ_8
 537 : $P_{251585} = (0, 26, 60, 1)$ lies on line ℓ_6
 538 : $P_{251713} = (0, 28, 60, 1)$ lies on line ℓ_3
 539 : $P_{253633} = (0, 58, 60, 1)$ lies on line ℓ_7
 540 : $P_{255028} = (51, 15, 61, 1)$ lies on line ℓ_4
 541 : $P_{255297} = (0, 20, 61, 1)$ lies on line ℓ_7
 542 : $P_{255425} = (0, 22, 61, 1)$ lies on line ℓ_3
 543 : $P_{256223} = (30, 34, 61, 1)$ lies on line ℓ_8
 544 : $P_{256914} = (17, 45, 61, 1)$ lies on line ℓ_5
 545 : $P_{258049} = (0, 63, 61, 1)$ lies on line ℓ_6

546 : $P_{258561} = (0, 7, 62, 1)$ lies on line ℓ_7
 547 : $P_{258625} = (0, 8, 62, 1)$ lies on line ℓ_3
 548 : $P_{259310} = (45, 18, 62, 1)$ lies on line ℓ_4
 549 : $P_{260192} = (31, 32, 62, 1)$ lies on line ℓ_5
 550 : $P_{261249} = (0, 49, 62, 1)$ lies on line ℓ_6
 551 : $P_{261326} = (13, 50, 62, 1)$ lies on line ℓ_8
 552 : $P_{262337} = (0, 2, 63, 1)$ lies on line ℓ_3

553 : $P_{262523} = (58, 4, 63, 1)$ lies on line ℓ_5
 554 : $P_{263489} = (0, 20, 63, 1)$ lies on line ℓ_6
 555 : $P_{263848} = (39, 25, 63, 1)$ lies on line ℓ_4
 556 : $P_{264100} = (35, 29, 63, 1)$ lies on line ℓ_8
 557 : $P_{264833} = (0, 41, 63, 1)$ lies on line ℓ_7

The single points on the surface are:

Points on surface but on no line

The surface has 3720 points not on any line:
Too many to print.

Line Intersection Graph

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

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_5	ℓ_7	ℓ_8
in point	P_0	P_0	P_{51632}	P_{51585}	P_{51632}

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_8
in point	P_0	P_0	P_{154561}	P_{154572}	P_{154572}

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_4	ℓ_5	ℓ_6
in point	P_0	P_0	P_{197349}	P_{197349}	P_{197313}

Line 3 intersects

Line	ℓ_1	ℓ_5	ℓ_6	ℓ_7
in point	P_{154561}	P_{158017}	P_3	P_3

Line 4 intersects

Line	ℓ_1	ℓ_2	ℓ_5	ℓ_7	ℓ_8
in point	P_{154572}	P_{197349}	P_{197349}	P_{45825}	P_{154572}

Line 5 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_8
in point	P_{51632}	P_{197349}	P_{158017}	P_{197349}	P_{51632}

Line 6 intersects

Line	ℓ_2	ℓ_3	ℓ_7	ℓ_8
in point	P_{197313}	P_3	P_3	P_{195585}

Line 7 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_6
in point	P_{51585}	P_3	P_{45825}	P_3

Line 8 intersects

Line	ℓ_0	ℓ_1	ℓ_4	ℓ_5	ℓ_6
in point	P_{51632}	P_{154572}	P_{154572}	P_{51632}	P_{195585}

The surface has 4289 points:

Too many to print.