Rank-74052 over GF(64)

January 15, 2021

The equation

The equation of the surface is :

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

(1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 0, 1, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(64) is 1090785350

General information

Number of lines	10
Number of points	4353
Number of singular points	1
Number of Eckardt points	2
Number of double points	9
Number of single points	621
Number of points off lines	3720
Number of Hesse planes	0
Number of axes	0
Type of points on lines	65^{10}
Type of lines on points	$5, 3^2, 2^9, 1^{621}, 0^{3720}$

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:

$$\ell_0 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17043520} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17043520} = \mathbf{Pl}(0, 0, 0, 1, 0, 0)_{129}$$

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & \epsilon^{21} \\ 0 & 1 & 0 & 0 \end{bmatrix}_{15179328} = \begin{bmatrix} 1 & 0 & 0 & 57 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{15179328} = \mathbf{Pl}(56,0,0,1,0,0)_{185}$$

$$\ell_2 = \begin{bmatrix} 1 & 0 & 0 & \epsilon^{42} \\ 0 & 1 & 0 & 0 \end{bmatrix}_{14913024} = \begin{bmatrix} 1 & 0 & 0 & 56 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{14913024} = \mathbf{Pl}(57,0,0,1,0,0)_{186}$$

$$\ell_3 = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{17047616} = \mathbf{Pl}(0,1,0,0,0,0)_1$$

$$\ell_4 = \begin{bmatrix} 1 & 0 & 0 & \epsilon^{21} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{15183424} = \begin{bmatrix} 1 & 0 & 0 & 57 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{15183424} = \mathbf{Pl}(0,57,1,0,0,0)_{122}$$

$$\ell_5 = \begin{bmatrix} 1 & 0 & 0 & \epsilon^{42} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{14917120} = \begin{bmatrix} 1 & 0 & 0 & 56 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{14917120} = \mathbf{Pl}(0,56,1,0,0,0)_{121}$$

$$\ell_6 = \begin{bmatrix} 1 & 1 & 0 & \epsilon^{21} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{15187585} = \begin{bmatrix} 1 & 1 & 0 & 57 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{15187585} = \mathbf{Pl}(0,57,1,0,0,1)_{270648}$$

$$\ell_7 = \begin{bmatrix} 1 & 1 & 0 & \epsilon^{42} \\ 0 & 0 & 1 & 0 \end{bmatrix}_{14921281} = \begin{bmatrix} 1 & 1 & 0 & 56 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{14921281} = \mathbf{Pl}(0,56,1,0,0,1)_{270647}$$

$$\ell_8 = \begin{bmatrix} 1 & 0 & 1 & \epsilon^{42} \\ 0 & 1 & 0 & 1 \end{bmatrix}_{14917249} = \begin{bmatrix} 1 & 0 & 1 & 56 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{14917249} = \mathbf{Pl}(1,1,0,56,1,1)_{544074}$$

$$\ell_9 = \begin{bmatrix} 1 & 0 & 1 & \epsilon^{21} \\ 0 & 1 & 0 & 1 \end{bmatrix}_{15183553} = \begin{bmatrix} 1 & 0 & 1 & 57 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{15183553} = \mathbf{Pl}(1,1,0,57,1,1)_{544137}$$

Rank of lines: (17043520, 15179328, 14913024, 17047616, 15183424, 14917120, 15187585, 14921281, 14917249, 15183553)
Rank of points on Klein quadric: (129, 185, 186, 1, 122, 121, 270648, 270647, 544074, 544137)

Eckardt Points

The surface has 2 Eckardt points:
$0 : P_1 = \mathbf{P}(0,1,0,0) = \mathbf{P}(0,1,0,0)$,
$1 : P_{4226} = \mathbf{P}(0,1,0,1) = \mathbf{P}(0,1,0,1)$.

Double Points

The surface has 9 Double points:
The double points on the surface are:

$P_3 = (0,0,0,1) = \ell_0 \cap \ell_3$ $P_{233593} = (56,0,56,1) = \ell_4 \cap \ell_9$
$P_{4218} = (56,0,0,1) = \ell_1 \cap \ell_4$ $P_{237690} = (57,0,57,1) = \ell_5 \cap \ell_8$
$P_{7802} = (56,56,0,1) = \ell_1 \cap \ell_6$ $P_{237177} = (56,56,56,1) = \ell_6 \cap \ell_8$
$P_{4219} = (57,0,0,1) = \ell_2 \cap \ell_5$ $P_{241338} = (57,57,57,1) = \ell_7 \cap \ell_9$
$P_{7867} = (57,57,0,1) = \ell_2 \cap \ell_7$

Single Points

The surface has 621 single points:
The single points on the surface are:

2

$0: P_{3652} = (1, 56, 1, 0)$ lies on line ℓ_8
$1: P_{3716} = (1, 57, 1, 0)$ lies on line ℓ_9
$2: P_{4282} = (56, 1, 0, 1)$ lies on line ℓ_1
$3: P_{4283} = (57, 1, 0, 1)$ lies on line ℓ_2
$4: P_{4290} = (0, 2, 0, 1)$ lies on line ℓ_0
$5: P_{4346} = (56, 2, 0, 1)$ lies on line ℓ_1
$6: P_{4347} = (57, 2, 0, 1)$ lies on line ℓ_2
$7: P_{4354} = (0, 3, 0, 1)$ lies on line ℓ_0
$8: P_{4410} = (56, 3, 0, 1)$ lies on line ℓ_1
$9: P_{4411} = (57, 3, 0, 1)$ lies on line ℓ_2
$10: P_{4418} = (0, 4, 0, 1)$ lies on line ℓ_0
$11: P_{4474} = (56, 4, 0, 1)$ lies on line ℓ_1
$12: P_{4475} = (57, 4, 0, 1)$ lies on line ℓ_2
$13: P_{4482} = (0, 5, 0, 1)$ lies on line ℓ_0
$14: P_{4538} = (56, 5, 0, 1)$ lies on line ℓ_1
$15: P_{4539} = (57, 5, 0, 1)$ lies on line ℓ_2
$16: P_{4546} = (0, 6, 0, 1)$ lies on line ℓ_0
$17: P_{4602} = (56, 6, 0, 1)$ lies on line ℓ_1
$18: P_{4603} = (57, 6, 0, 1)$ lies on line ℓ_2
$19: P_{4610} = (0, 7, 0, 1)$ lies on line ℓ_0
$20: P_{4666} = (56, 7, 0, 1)$ lies on line ℓ_1
$21: P_{4667} = (57, 7, 0, 1)$ lies on line ℓ_2
$22: P_{4674} = (0, 8, 0, 1)$ lies on line ℓ_0
$23: P_{4730} = (56, 8, 0, 1)$ lies on line ℓ_1
$24: P_{4731} = (57, 8, 0, 1)$ lies on line ℓ_2
$25: P_{4738} = (0, 9, 0, 1)$ lies on line ℓ_0
$26: P_{4794} = (56, 9, 0, 1)$ lies on line ℓ_1
$27: P_{4795} = (57, 9, 0, 1)$ lies on line ℓ_2
$28: P_{4802} = (0, 10, 0, 1)$ lies on line ℓ_0
$29: P_{4858} = (56, 10, 0, 1)$ lies on line ℓ_1
$30: P_{4859} = (57, 10, 0, 1)$ lies on line ℓ_2
$31: P_{4866} = (0, 11, 0, 1)$ lies on line ℓ_0
$32: P_{4922} = (56, 11, 0, 1)$ lies on line ℓ_1
$33: P_{4923} = (57, 11, 0, 1)$ lies on line ℓ_2
$34: P_{4930} = (0, 12, 0, 1)$ lies on line ℓ_0
$35: P_{4986} = (56, 12, 0, 1)$ lies on line ℓ_1
$36: P_{4987} = (57, 12, 0, 1)$ lies on line ℓ_2
$37: P_{4994} = (0, 13, 0, 1)$ lies on line ℓ_0
$38: P_{5050} = (56, 13, 0, 1)$ lies on line ℓ_1
$39: P_{5051} = (57, 13, 0, 1)$ lies on line ℓ_2
$40: P_{5058} = (0, 14, 0, 1)$ lies on line ℓ_0
$41: P_{5114} = (56, 14, 0, 1)$ lies on line ℓ_1
$42: P_{5115} = (57, 14, 0, 1)$ lies on line ℓ_2
$43: P_{5122} = (0, 15, 0, 1)$ lies on line ℓ_0
$44: P_{5178} = (56, 15, 0, 1)$ lies on line ℓ_1
$45: P_{5179} = (57, 15, 0, 1)$ lies on line ℓ_2
$46: P_{5186} = (0, 16, 0, 1)$ lies on line ℓ_0
$47: P_{5242} = (56, 16, 0, 1)$ lies on line ℓ_1
$48: P_{5243} = (57, 16, 0, 1)$ lies on line ℓ_2
$49: P_{5250} = (0, 17, 0, 1)$ lies on line ℓ_0
$50: P_{5306} = (56, 17, 0, 1)$ lies on line ℓ_1
$51: P_{5307} = (57, 17, 0, 1)$ lies on line ℓ_2
$52: P_{5314} = (0, 18, 0, 1)$ lies on line ℓ_0
$53: P_{5370} = (56, 18, 0, 1)$ lies on line ℓ_1

$54: P_{5371} = (57, 18, 0, 1)$ lies on line ℓ_2
$55: P_{5378} = (0, 19, 0, 1)$ lies on line ℓ_0
$56: P_{5434} = (56, 19, 0, 1)$ lies on line ℓ_1
$57: P_{5435} = (57, 19, 0, 1)$ lies on line ℓ_2
$58: P_{5442} = (0, 20, 0, 1)$ lies on line ℓ_0
$59: P_{5498} = (56, 20, 0, 1)$ lies on line ℓ_1
$60: P_{5499} = (57, 20, 0, 1)$ lies on line ℓ_2
$61: P_{5506} = (0, 21, 0, 1)$ lies on line ℓ_0
$62: P_{5562} = (56, 21, 0, 1)$ lies on line ℓ_1
$63: P_{5563} = (57, 21, 0, 1)$ lies on line ℓ_2
$64: P_{5570} = (0, 22, 0, 1)$ lies on line ℓ_0
$65: P_{5626} = (56, 22, 0, 1)$ lies on line ℓ_1
$66: P_{5627} = (57, 22, 0, 1)$ lies on line ℓ_2
$67: P_{5634} = (0, 23, 0, 1)$ lies on line ℓ_0
$68: P_{5690} = (56, 23, 0, 1)$ lies on line ℓ_1
$69: P_{5691} = (57, 23, 0, 1)$ lies on line ℓ_2
$70: P_{5698} = (0, 24, 0, 1)$ lies on line ℓ_0
$71: P_{5754} = (56, 24, 0, 1)$ lies on line ℓ_1
$72: P_{5755} = (57, 24, 0, 1)$ lies on line ℓ_2
$73: P_{5762} = (0, 25, 0, 1)$ lies on line ℓ_0
$74: P_{5818} = (56, 25, 0, 1)$ lies on line ℓ_1
$75: P_{5819} = (57, 25, 0, 1)$ lies on line ℓ_2
$76: P_{5826} = (0, 26, 0, 1)$ lies on line ℓ_0
$77: P_{5882} = (56, 26, 0, 1)$ lies on line ℓ_1
$78: P_{5883} = (57, 26, 0, 1)$ lies on line ℓ_2
$79: P_{5890} = (0, 27, 0, 1)$ lies on line ℓ_0
$80: P_{5946} = (56, 27, 0, 1)$ lies on line ℓ_1
$81: P_{5947} = (57, 27, 0, 1)$ lies on line ℓ_2
$82: P_{5954} = (0, 28, 0, 1)$ lies on line ℓ_0
$83: P_{6010} = (56, 28, 0, 1)$ lies on line ℓ_1
$84: P_{6011} = (57, 28, 0, 1)$ lies on line ℓ_2
$85: P_{6018} = (0, 29, 0, 1)$ lies on line ℓ_0
$86: P_{6074} = (56, 29, 0, 1)$ lies on line ℓ_1
$87: P_{6075} = (57, 29, 0, 1)$ lies on line ℓ_2
$88: P_{6082} = (0, 30, 0, 1)$ lies on line ℓ_0
$89: P_{6138} = (56, 30, 0, 1)$ lies on line ℓ_1
$90: P_{6139} = (57, 30, 0, 1)$ lies on line ℓ_2
$91: P_{6146} = (0, 31, 0, 1)$ lies on line ℓ_0
$92: P_{6202} = (56, 31, 0, 1)$ lies on line ℓ_1
$93: P_{6203} = (57, 31, 0, 1)$ lies on line ℓ_2
$94: P_{6210} = (0, 32, 0, 1)$ lies on line ℓ_0
$95: P_{6266} = (56, 32, 0, 1)$ lies on line ℓ_1
$96: P_{6267} = (57, 32, 0, 1)$ lies on line ℓ_2
$97: P_{6274} = (0, 33, 0, 1)$ lies on line ℓ_0
$98: P_{6330} = (56, 33, 0, 1)$ lies on line ℓ_1
$99: P_{6331} = (57, 33, 0, 1)$ lies on line ℓ_2
$100: P_{6338} = (0, 34, 0, 1)$ lies on line ℓ_0
$101: P_{6394} = (56, 34, 0, 1)$ lies on line ℓ_1
$102: P_{6395} = (57, 34, 0, 1)$ lies on line ℓ_2
$103: P_{6402} = (0, 35, 0, 1)$ lies on line ℓ_0
$104: P_{6458} = (56, 35, 0, 1)$ lies on line ℓ_1
$105: P_{6459} = (57, 35, 0, 1)$ lies on line ℓ_2
$106: P_{6466} = (0, 36, 0, 1)$ lies on line ℓ_0
$107: P_{6522} = (56, 36, 0, 1)$ lies on line ℓ_1

$108 : P_{6523} = (57, 36, 0, 1)$ lies on line ℓ_2
$109 : P_{6530} = (0, 37, 0, 1)$ lies on line ℓ_0
$110 : P_{6586} = (56, 37, 0, 1)$ lies on line ℓ_1
$111 : P_{6587} = (57, 37, 0, 1)$ lies on line ℓ_2
$112 : P_{6594} = (0, 38, 0, 1)$ lies on line ℓ_0
$113 : P_{6650} = (56, 38, 0, 1)$ lies on line ℓ_1
$114 : P_{6651} = (57, 38, 0, 1)$ lies on line ℓ_2
$115 : P_{6658} = (0, 39, 0, 1)$ lies on line ℓ_0
$116 : P_{6714} = (56, 39, 0, 1)$ lies on line ℓ_1
$117 : P_{6715} = (57, 39, 0, 1)$ lies on line ℓ_2
$118 : P_{6722} = (0, 40, 0, 1)$ lies on line ℓ_0
$119 : P_{6778} = (56, 40, 0, 1)$ lies on line ℓ_1
$120 : P_{6779} = (57, 40, 0, 1)$ lies on line ℓ_2
$121 : P_{6786} = (0, 41, 0, 1)$ lies on line ℓ_0
$122 : P_{6842} = (56, 41, 0, 1)$ lies on line ℓ_1
$123 : P_{6843} = (57, 41, 0, 1)$ lies on line ℓ_2
$124 : P_{6850} = (0, 42, 0, 1)$ lies on line ℓ_0
$125 : P_{6906} = (56, 42, 0, 1)$ lies on line ℓ_1
$126 : P_{6907} = (57, 42, 0, 1)$ lies on line ℓ_2
$127 : P_{6914} = (0, 43, 0, 1)$ lies on line ℓ_0
$128 : P_{6970} = (56, 43, 0, 1)$ lies on line ℓ_1
$129 : P_{6971} = (57, 43, 0, 1)$ lies on line ℓ_2
$130 : P_{6978} = (0, 44, 0, 1)$ lies on line ℓ_0
$131 : P_{7034} = (56, 44, 0, 1)$ lies on line ℓ_1
$132 : P_{7035} = (57, 44, 0, 1)$ lies on line ℓ_2
$133 : P_{7042} = (0, 45, 0, 1)$ lies on line ℓ_0
$134 : P_{7098} = (56, 45, 0, 1)$ lies on line ℓ_1
$135 : P_{7099} = (57, 45, 0, 1)$ lies on line ℓ_2
$136 : P_{7106} = (0, 46, 0, 1)$ lies on line ℓ_0
$137 : P_{7162} = (56, 46, 0, 1)$ lies on line ℓ_1
$138 : P_{7163} = (57, 46, 0, 1)$ lies on line ℓ_2
$139 : P_{7170} = (0, 47, 0, 1)$ lies on line ℓ_0
$140 : P_{7226} = (56, 47, 0, 1)$ lies on line ℓ_1
$141 : P_{7227} = (57, 47, 0, 1)$ lies on line ℓ_2
$142 : P_{7234} = (0, 48, 0, 1)$ lies on line ℓ_0
$143 : P_{7290} = (56, 48, 0, 1)$ lies on line ℓ_1
$144 : P_{7291} = (57, 48, 0, 1)$ lies on line ℓ_2
$145 : P_{7298} = (0, 49, 0, 1)$ lies on line ℓ_0
$146 : P_{7354} = (56, 49, 0, 1)$ lies on line ℓ_1
$147 : P_{7355} = (57, 49, 0, 1)$ lies on line ℓ_2
$148 : P_{7362} = (0, 50, 0, 1)$ lies on line ℓ_0
$149 : P_{7418} = (56, 50, 0, 1)$ lies on line ℓ_1
$150 : P_{7419} = (57, 50, 0, 1)$ lies on line ℓ_2
$151 : P_{7426} = (0, 51, 0, 1)$ lies on line ℓ_0
$152 : P_{7482} = (56, 51, 0, 1)$ lies on line ℓ_1
$153 : P_{7483} = (57, 51, 0, 1)$ lies on line ℓ_2
$154 : P_{7490} = (0, 52, 0, 1)$ lies on line ℓ_0
$155 : P_{7546} = (56, 52, 0, 1)$ lies on line ℓ_1
$156 : P_{7547} = (57, 52, 0, 1)$ lies on line ℓ_2
$157 : P_{7554} = (0, 53, 0, 1)$ lies on line ℓ_0
$158 : P_{7610} = (56, 53, 0, 1)$ lies on line ℓ_1
$159 : P_{7611} = (57, 53, 0, 1)$ lies on line ℓ_2
$160 : P_{7618} = (0, 54, 0, 1)$ lies on line ℓ_0
$161 : P_{7674} = (56, 54, 0, 1)$ lies on line ℓ_1

$162 : P_{7675} = (57, 54, 0, 1)$ lies on line ℓ_2
$163 : P_{7682} = (0, 55, 0, 1)$ lies on line ℓ_0
$164 : P_{7738} = (56, 55, 0, 1)$ lies on line ℓ_1
$165 : P_{7739} = (57, 55, 0, 1)$ lies on line ℓ_2
$166 : P_{7746} = (0, 56, 0, 1)$ lies on line ℓ_0
$167 : P_{7803} = (57, 56, 0, 1)$ lies on line ℓ_2
$168 : P_{7810} = (0, 57, 0, 1)$ lies on line ℓ_0
$169 : P_{7866} = (56, 57, 0, 1)$ lies on line ℓ_1
$170 : P_{7874} = (0, 58, 0, 1)$ lies on line ℓ_0
$171 : P_{7930} = (56, 58, 0, 1)$ lies on line ℓ_1
$172 : P_{7931} = (57, 58, 0, 1)$ lies on line ℓ_2
$173 : P_{7938} = (0, 59, 0, 1)$ lies on line ℓ_0
$174 : P_{7994} = (56, 59, 0, 1)$ lies on line ℓ_1
$175 : P_{7995} = (57, 59, 0, 1)$ lies on line ℓ_2
$176 : P_{8002} = (0, 60, 0, 1)$ lies on line ℓ_0
$177 : P_{8058} = (56, 60, 0, 1)$ lies on line ℓ_1
$178 : P_{8059} = (57, 60, 0, 1)$ lies on line ℓ_2
$179 : P_{8066} = (0, 61, 0, 1)$ lies on line ℓ_0
$180 : P_{8122} = (56, 61, 0, 1)$ lies on line ℓ_1
$181 : P_{8123} = (57, 61, 0, 1)$ lies on line ℓ_2
$182 : P_{8130} = (0, 62, 0, 1)$ lies on line ℓ_0
$183 : P_{8186} = (56, 62, 0, 1)$ lies on line ℓ_1
$184 : P_{8187} = (57, 62, 0, 1)$ lies on line ℓ_2
$185 : P_{8194} = (0, 63, 0, 1)$ lies on line ℓ_0
$186 : P_{8250} = (56, 63, 0, 1)$ lies on line ℓ_1
$187 : P_{8251} = (57, 63, 0, 1)$ lies on line ℓ_2
$188 : P_{8258} = (0, 0, 1, 1)$ lies on line ℓ_3
$189 : P_{8314} = (56, 0, 1, 1)$ lies on line ℓ_4
$190 : P_{8315} = (57, 0, 1, 1)$ lies on line ℓ_5
$191 : P_{11842} = (1, 56, 1, 1)$ lies on line ℓ_9
$192 : P_{11897} = (56, 56, 1, 1)$ lies on line ℓ_6
$193 : P_{11906} = (1, 57, 1, 1)$ lies on line ℓ_8
$194 : P_{11962} = (57, 57, 1, 1)$ lies on line ℓ_7
$195 : P_{12353} = (0, 0, 2, 1)$ lies on line ℓ_3
$196 : P_{12409} = (56, 0, 2, 1)$ lies on line ℓ_4
$197 : P_{12410} = (57, 0, 2, 1)$ lies on line ℓ_5
$198 : P_{13379} = (2, 16, 2, 1)$ lies on line ℓ_8
$199 : P_{13507} = (2, 18, 2, 1)$ lies on line ℓ_9
$200 : P_{15993} = (56, 56, 2, 1)$ lies on line ℓ_6
$201 : P_{16058} = (57, 57, 2, 1)$ lies on line ℓ_7
$202 : P_{16449} = (0, 0, 3, 1)$ lies on line ℓ_3
$203 : P_{16505} = (56, 0, 3, 1)$ lies on line ℓ_4
$204 : P_{16506} = (57, 0, 3, 1)$ lies on line ℓ_5
$205 : P_{19012} = (3, 40, 3, 1)$ lies on line ℓ_8
$206 : P_{19204} = (3, 43, 3, 1)$ lies on line ℓ_9
$207 : P_{20089} = (56, 56, 3, 1)$ lies on line ℓ_6
$208 : P_{20154} = (57, 57, 3, 1)$ lies on line ℓ_7
$209 : P_{20545} = (0, 0, 4, 1)$ lies on line ℓ_3
$210 : P_{20601} = (56, 0, 4, 1)$ lies on line ℓ_4
$211 : P_{20602} = (57, 0, 4, 1)$ lies on line ℓ_5
$212 : P_{22789} = (4, 35, 4, 1)$ lies on line ℓ_8
$213 : P_{23045} = (4, 39, 4, 1)$ lies on line ℓ_9
$214 : P_{24185} = (56, 56, 4, 1)$ lies on line ℓ_6
$215 : P_{24250} = (57, 57, 4, 1)$ lies on line ℓ_7

216 : $P_{24641} = (0, 0, 5, 1)$ lies on line ℓ_3
217 : $P_{24697} = (56, 0, 5, 1)$ lies on line ℓ_4
218 : $P_{24698} = (57, 0, 5, 1)$ lies on line ℓ_5
219 : $P_{26374} = (5, 27, 5, 1)$ lies on line ℓ_8
220 : $P_{26566} = (5, 30, 5, 1)$ lies on line ℓ_9
221 : $P_{28281} = (56, 56, 5, 1)$ lies on line ℓ_6
222 : $P_{28346} = (57, 57, 5, 1)$ lies on line ℓ_7
223 : $P_{28737} = (0, 0, 6, 1)$ lies on line ℓ_3
224 : $P_{28793} = (56, 0, 6, 1)$ lies on line ℓ_4
225 : $P_{28794} = (57, 0, 6, 1)$ lies on line ℓ_5
226 : $P_{31943} = (6, 50, 6, 1)$ lies on line ℓ_8
227 : $P_{32071} = (6, 52, 6, 1)$ lies on line ℓ_9
228 : $P_{32377} = (56, 56, 6, 1)$ lies on line ℓ_6
229 : $P_{32442} = (57, 57, 6, 1)$ lies on line ℓ_7
230 : $P_{32833} = (0, 0, 7, 1)$ lies on line ℓ_3
231 : $P_{32889} = (56, 0, 7, 1)$ lies on line ℓ_4
232 : $P_{32890} = (57, 0, 7, 1)$ lies on line ℓ_5
233 : $P_{33480} = (7, 10, 7, 1)$ lies on line ℓ_8
234 : $P_{33672} = (7, 13, 7, 1)$ lies on line ℓ_9
235 : $P_{36473} = (56, 56, 7, 1)$ lies on line ℓ_6
236 : $P_{36538} = (57, 57, 7, 1)$ lies on line ℓ_7
237 : $P_{36929} = (0, 0, 8, 1)$ lies on line ℓ_3
238 : $P_{36985} = (56, 0, 8, 1)$ lies on line ℓ_4
239 : $P_{36986} = (57, 0, 8, 1)$ lies on line ℓ_5
240 : $P_{39241} = (8, 36, 8, 1)$ lies on line ℓ_8
241 : $P_{39753} = (8, 44, 8, 1)$ lies on line ℓ_9
242 : $P_{40569} = (56, 56, 8, 1)$ lies on line ℓ_6
243 : $P_{40634} = (57, 57, 8, 1)$ lies on line ℓ_7
244 : $P_{41025} = (0, 0, 9, 1)$ lies on line ℓ_3
245 : $P_{41081} = (56, 0, 9, 1)$ lies on line ℓ_4
246 : $P_{41082} = (57, 0, 9, 1)$ lies on line ℓ_5
247 : $P_{42378} = (9, 21, 9, 1)$ lies on line ℓ_9
248 : $P_{42826} = (9, 28, 9, 1)$ lies on line ℓ_8
249 : $P_{44665} = (56, 56, 9, 1)$ lies on line ℓ_6
250 : $P_{44730} = (57, 57, 9, 1)$ lies on line ℓ_7
251 : $P_{45121} = (0, 0, 10, 1)$ lies on line ℓ_3
252 : $P_{45177} = (56, 0, 10, 1)$ lies on line ℓ_4
253 : $P_{45178} = (57, 0, 10, 1)$ lies on line ℓ_5
254 : $P_{48523} = (10, 53, 10, 1)$ lies on line ℓ_8
255 : $P_{48761} = (56, 56, 10, 1)$ lies on line ℓ_6
256 : $P_{48826} = (57, 57, 10, 1)$ lies on line ℓ_7
257 : $P_{49163} = (10, 63, 10, 1)$ lies on line ℓ_9
258 : $P_{49217} = (0, 0, 11, 1)$ lies on line ℓ_3
259 : $P_{49273} = (56, 0, 11, 1)$ lies on line ℓ_4
260 : $P_{49274} = (57, 0, 11, 1)$ lies on line ℓ_5
261 : $P_{49612} = (11, 6, 11, 1)$ lies on line ℓ_9
262 : $P_{50060} = (11, 13, 11, 1)$ lies on line ℓ_8
263 : $P_{52857} = (56, 56, 11, 1)$ lies on line ℓ_6
264 : $P_{52922} = (57, 57, 11, 1)$ lies on line ℓ_7
265 : $P_{53313} = (0, 0, 12, 1)$ lies on line ℓ_3
266 : $P_{53369} = (56, 0, 12, 1)$ lies on line ℓ_4
267 : $P_{53370} = (57, 0, 12, 1)$ lies on line ℓ_5
268 : $P_{53709} = (12, 6, 12, 1)$ lies on line ℓ_8
269 : $P_{53965} = (12, 10, 12, 1)$ lies on line ℓ_9
270 : $P_{56953} = (56, 56, 12, 1)$ lies on line ℓ_6
271 : $P_{57018} = (57, 57, 12, 1)$ lies on line ℓ_7
272 : $P_{57409} = (0, 0, 13, 1)$ lies on line ℓ_3
273 : $P_{57465} = (56, 0, 13, 1)$ lies on line ℓ_4
274 : $P_{57466} = (57, 0, 13, 1)$ lies on line ℓ_5
275 : $P_{60686} = (13, 51, 13, 1)$ lies on line ℓ_9
276 : $P_{61049} = (56, 56, 13, 1)$ lies on line ℓ_6
277 : $P_{61114} = (57, 57, 13, 1)$ lies on line ℓ_7
278 : $P_{61390} = (13, 62, 13, 1)$ lies on line ℓ_8
279 : $P_{61505} = (0, 0, 14, 1)$ lies on line ℓ_3
280 : $P_{61561} = (56, 0, 14, 1)$ lies on line ℓ_4
281 : $P_{61562} = (57, 0, 14, 1)$ lies on line ℓ_5
282 : $P_{62991} = (14, 23, 14, 1)$ lies on line ℓ_8
283 : $P_{63119} = (14, 25, 14, 1)$ lies on line ℓ_9
284 : $P_{65145} = (56, 56, 14, 1)$ lies on line ℓ_6
285 : $P_{65210} = (57, 57, 14, 1)$ lies on line ℓ_7
286 : $P_{65601} = (0, 0, 15, 1)$ lies on line ℓ_3
287 : $P_{65657} = (56, 0, 15, 1)$ lies on line ℓ_4
288 : $P_{65658} = (57, 0, 15, 1)$ lies on line ℓ_5
289 : $P_{67664} = (15, 32, 15, 1)$ lies on line ℓ_9
290 : $P_{68624} = (15, 47, 15, 1)$ lies on line ℓ_8
291 : $P_{69241} = (56, 56, 15, 1)$ lies on line ℓ_6
292 : $P_{69306} = (57, 57, 15, 1)$ lies on line ℓ_7
293 : $P_{69697} = (0, 0, 16, 1)$ lies on line ℓ_3
294 : $P_{69753} = (56, 0, 16, 1)$ lies on line ℓ_4
295 : $P_{69754} = (57, 0, 16, 1)$ lies on line ℓ_5
296 : $P_{72401} = (16, 42, 16, 1)$ lies on line ℓ_8
297 : $P_{73337} = (56, 56, 16, 1)$ lies on line ℓ_6
298 : $P_{73402} = (57, 57, 16, 1)$ lies on line ℓ_7
299 : $P_{73425} = (16, 58, 16, 1)$ lies on line ℓ_9
300 : $P_{73793} = (0, 0, 17, 1)$ lies on line ℓ_3
301 : $P_{73849} = (56, 0, 17, 1)$ lies on line ℓ_4
302 : $P_{73850} = (57, 0, 17, 1)$ lies on line ℓ_5
303 : $P_{74002} = (17, 3, 17, 1)$ lies on line ℓ_9
304 : $P_{74962} = (17, 18, 17, 1)$ lies on line ℓ_8
305 : $P_{77433} = (56, 56, 17, 1)$ lies on line ℓ_6
306 : $P_{77498} = (57, 57, 17, 1)$ lies on line ℓ_7
307 : $P_{77889} = (0, 0, 18, 1)$ lies on line ℓ_3
308 : $P_{77945} = (56, 0, 18, 1)$ lies on line ℓ_4
309 : $P_{77946} = (57, 0, 18, 1)$ lies on line ℓ_5
310 : $P_{80531} = (18, 41, 18, 1)$ lies on line ℓ_9
311 : $P_{81529} = (56, 56, 18, 1)$ lies on line ℓ_6
312 : $P_{81594} = (57, 57, 18, 1)$ lies on line ℓ_7
313 : $P_{81683} = (18, 59, 18, 1)$ lies on line ℓ_8
314 : $P_{81985} = (0, 0, 19, 1)$ lies on line ℓ_3
315 : $P_{82041} = (56, 0, 19, 1)$ lies on line ℓ_4
316 : $P_{82042} = (57, 0, 19, 1)$ lies on line ℓ_5
317 : $P_{82196} = (19, 3, 19, 1)$ lies on line ℓ_8
318 : $P_{83028} = (19, 16, 19, 1)$ lies on line ℓ_9
319 : $P_{85625} = (56, 56, 19, 1)$ lies on line ℓ_6
320 : $P_{85690} = (57, 57, 19, 1)$ lies on line ℓ_7
321 : $P_{86081} = (0, 0, 20, 1)$ lies on line ℓ_3
322 : $P_{86137} = (56, 0, 20, 1)$ lies on line ℓ_4
323 : $P_{86138} = (57, 0, 20, 1)$ lies on line ℓ_5

$324: P_{86613} = (20, 8, 20, 1)$ lies on line ℓ_8
$325: P_{87893} = (20, 28, 20, 1)$ lies on line ℓ_9
$326: P_{89721} = (56, 56, 20, 1)$ lies on line ℓ_6
$327: P_{89786} = (57, 57, 20, 1)$ lies on line ℓ_7
$328: P_{90177} = (0, 0, 21, 1)$ lies on line ℓ_3
$329: P_{90233} = (56, 0, 21, 1)$ lies on line ℓ_4
$330: P_{90234} = (57, 0, 21, 1)$ lies on line ℓ_5
$331: P_{92566} = (21, 37, 21, 1)$ lies on line ℓ_9
$332: P_{93270} = (21, 48, 21, 1)$ lies on line ℓ_8
$333: P_{93817} = (56, 56, 21, 1)$ lies on line ℓ_6
$334: P_{93882} = (57, 57, 21, 1)$ lies on line ℓ_7
$335: P_{94273} = (0, 0, 22, 1)$ lies on line ℓ_3
$336: P_{94329} = (56, 0, 22, 1)$ lies on line ℓ_4
$337: P_{94330} = (57, 0, 22, 1)$ lies on line ℓ_5
$338: P_{95255} = (22, 15, 22, 1)$ lies on line ℓ_9
$339: P_{95895} = (22, 25, 22, 1)$ lies on line ℓ_8
$340: P_{97913} = (56, 56, 22, 1)$ lies on line ℓ_6
$341: P_{97978} = (57, 57, 22, 1)$ lies on line ℓ_7
$342: P_{98369} = (0, 0, 23, 1)$ lies on line ℓ_3
$343: P_{98425} = (56, 0, 23, 1)$ lies on line ℓ_4
$344: P_{98426} = (57, 0, 23, 1)$ lies on line ℓ_5
$345: P_{100504} = (23, 33, 23, 1)$ lies on line ℓ_8
$346: P_{101848} = (23, 54, 23, 1)$ lies on line ℓ_9
$347: P_{102009} = (56, 56, 23, 1)$ lies on line ℓ_6
$348: P_{102074} = (57, 57, 23, 1)$ lies on line ℓ_7
$349: P_{102465} = (0, 0, 24, 1)$ lies on line ℓ_3
$350: P_{102521} = (56, 0, 24, 1)$ lies on line ℓ_4
$351: P_{102522} = (57, 0, 24, 1)$ lies on line ℓ_5
$352: P_{103449} = (24, 15, 24, 1)$ lies on line ℓ_8
$353: P_{103961} = (24, 23, 24, 1)$ lies on line ℓ_9
$354: P_{106105} = (56, 56, 24, 1)$ lies on line ℓ_6
$355: P_{106170} = (57, 57, 24, 1)$ lies on line ℓ_7
$356: P_{106561} = (0, 0, 25, 1)$ lies on line ℓ_3
$357: P_{106617} = (56, 0, 25, 1)$ lies on line ℓ_4
$358: P_{106618} = (57, 0, 25, 1)$ lies on line ℓ_5
$359: P_{109530} = (25, 46, 25, 1)$ lies on line ℓ_9
$360: P_{110106} = (25, 55, 25, 1)$ lies on line ℓ_8
$361: P_{110201} = (56, 56, 25, 1)$ lies on line ℓ_6
$362: P_{110266} = (57, 57, 25, 1)$ lies on line ℓ_7
$363: P_{110657} = (0, 0, 26, 1)$ lies on line ℓ_3
$364: P_{110713} = (56, 0, 26, 1)$ lies on line ℓ_4
$365: P_{110714} = (57, 0, 26, 1)$ lies on line ℓ_5
$366: P_{110939} = (26, 4, 26, 1)$ lies on line ℓ_9
$367: P_{112603} = (26, 30, 26, 1)$ lies on line ℓ_8
$368: P_{114297} = (56, 56, 26, 1)$ lies on line ℓ_6
$369: P_{114362} = (57, 57, 26, 1)$ lies on line ℓ_7
$370: P_{114753} = (0, 0, 27, 1)$ lies on line ℓ_3
$371: P_{114809} = (56, 0, 27, 1)$ lies on line ℓ_4
$372: P_{114810} = (57, 0, 27, 1)$ lies on line ℓ_5
$373: P_{117212} = (27, 38, 27, 1)$ lies on line ℓ_8
$374: P_{118393} = (56, 56, 27, 1)$ lies on line ℓ_6
$375: P_{118458} = (57, 57, 27, 1)$ lies on line ℓ_7
$376: P_{118684} = (27, 61, 27, 1)$ lies on line ℓ_9
$377: P_{118849} = (0, 0, 28, 1)$ lies on line ℓ_3

$378: P_{118905} = (56, 0, 28, 1)$ lies on line ℓ_4
$379: P_{118906} = (57, 0, 28, 1)$ lies on line ℓ_5
$380: P_{121757} = (28, 45, 28, 1)$ lies on line ℓ_8
$381: P_{122013} = (28, 49, 28, 1)$ lies on line ℓ_9
$382: P_{122489} = (56, 56, 28, 1)$ lies on line ℓ_6
$383: P_{122554} = (57, 57, 28, 1)$ lies on line ℓ_7
$384: P_{122945} = (0, 0, 29, 1)$ lies on line ℓ_3
$385: P_{123001} = (56, 0, 29, 1)$ lies on line ℓ_4
$386: P_{123002} = (57, 0, 29, 1)$ lies on line ℓ_5
$387: P_{123486} = (29, 8, 29, 1)$ lies on line ℓ_9
$388: P_{124318} = (29, 21, 29, 1)$ lies on line ℓ_8
$389: P_{126585} = (56, 56, 29, 1)$ lies on line ℓ_6
$390: P_{126650} = (57, 57, 29, 1)$ lies on line ℓ_7
$391: P_{127041} = (0, 0, 30, 1)$ lies on line ℓ_3
$392: P_{127097} = (56, 0, 30, 1)$ lies on line ℓ_4
$393: P_{127098} = (57, 0, 30, 1)$ lies on line ℓ_5
$394: P_{129247} = (30, 34, 30, 1)$ lies on line ℓ_9
$395: P_{130681} = (56, 56, 30, 1)$ lies on line ℓ_6
$396: P_{130746} = (57, 57, 30, 1)$ lies on line ℓ_7
$397: P_{130911} = (30, 60, 30, 1)$ lies on line ℓ_8
$398: P_{131137} = (0, 0, 31, 1)$ lies on line ℓ_3
$399: P_{131193} = (56, 0, 31, 1)$ lies on line ℓ_4
$400: P_{131194} = (57, 0, 31, 1)$ lies on line ℓ_5
$401: P_{131424} = (31, 4, 31, 1)$ lies on line ℓ_8
$402: P_{132896} = (31, 27, 31, 1)$ lies on line ℓ_9
$403: P_{134777} = (56, 56, 31, 1)$ lies on line ℓ_6
$404: P_{134842} = (57, 57, 31, 1)$ lies on line ℓ_7
$405: P_{135233} = (0, 0, 32, 1)$ lies on line ℓ_3
$406: P_{135289} = (56, 0, 32, 1)$ lies on line ℓ_4
$407: P_{135290} = (57, 0, 32, 1)$ lies on line ℓ_5
$408: P_{136673} = (32, 22, 32, 1)$ lies on line ℓ_9
$409: P_{138721} = (32, 54, 32, 1)$ lies on line ℓ_8
$410: P_{138873} = (56, 56, 32, 1)$ lies on line ℓ_6
$411: P_{138938} = (57, 57, 32, 1)$ lies on line ℓ_7
$412: P_{139329} = (0, 0, 33, 1)$ lies on line ℓ_3
$413: P_{139385} = (56, 0, 33, 1)$ lies on line ℓ_4
$414: P_{139386} = (57, 0, 33, 1)$ lies on line ℓ_5
$415: P_{140258} = (33, 14, 33, 1)$ lies on line ℓ_8
$416: P_{142370} = (33, 47, 33, 1)$ lies on line ℓ_9
$417: P_{142969} = (56, 56, 33, 1)$ lies on line ℓ_6
$418: P_{143034} = (57, 57, 33, 1)$ lies on line ℓ_7
$419: P_{143425} = (0, 0, 34, 1)$ lies on line ℓ_3
$420: P_{143481} = (56, 0, 34, 1)$ lies on line ℓ_4
$421: P_{143482} = (57, 0, 34, 1)$ lies on line ℓ_5
$422: P_{143779} = (34, 5, 34, 1)$ lies on line ℓ_9
$423: P_{145955} = (34, 39, 34, 1)$ lies on line ℓ_8
$424: P_{147065} = (56, 56, 34, 1)$ lies on line ℓ_6
$425: P_{147130} = (57, 57, 34, 1)$ lies on line ℓ_7
$426: P_{147521} = (0, 0, 35, 1)$ lies on line ℓ_3
$427: P_{147577} = (56, 0, 35, 1)$ lies on line ℓ_4
$428: P_{147578} = (57, 0, 35, 1)$ lies on line ℓ_5
$429: P_{149540} = (35, 31, 35, 1)$ lies on line ℓ_8
$430: P_{151161} = (56, 56, 35, 1)$ lies on line ℓ_6
$431: P_{151226} = (57, 57, 35, 1)$ lies on line ℓ_7

432 : $P_{151396} = (35, 60, 35, 1)$ lies on line ℓ_9
433 : $P_{151617} = (0, 0, 36, 1)$ lies on line ℓ_3
434 : $P_{151673} = (56, 0, 36, 1)$ lies on line ℓ_4
435 : $P_{151674} = (57, 0, 36, 1)$ lies on line ℓ_5
436 : $P_{152933} = (36, 20, 36, 1)$ lies on line ℓ_8
437 : $P_{154725} = (36, 48, 36, 1)$ lies on line ℓ_9
438 : $P_{155257} = (56, 56, 36, 1)$ lies on line ℓ_6
439 : $P_{155322} = (57, 57, 36, 1)$ lies on line ℓ_7
440 : $P_{155713} = (0, 0, 37, 1)$ lies on line ℓ_3
441 : $P_{155769} = (56, 0, 37, 1)$ lies on line ℓ_4
442 : $P_{155770} = (57, 0, 37, 1)$ lies on line ℓ_5
443 : $P_{156326} = (37, 9, 37, 1)$ lies on line ℓ_9
444 : $P_{158566} = (37, 44, 37, 1)$ lies on line ℓ_8
445 : $P_{159353} = (56, 56, 37, 1)$ lies on line ℓ_6
446 : $P_{159418} = (57, 57, 37, 1)$ lies on line ℓ_7
447 : $P_{159809} = (0, 0, 38, 1)$ lies on line ℓ_3
448 : $P_{159865} = (56, 0, 38, 1)$ lies on line ℓ_4
449 : $P_{159866} = (57, 0, 38, 1)$ lies on line ℓ_5
450 : $P_{160167} = (38, 5, 38, 1)$ lies on line ℓ_8
451 : $P_{162087} = (38, 35, 38, 1)$ lies on line ℓ_9
452 : $P_{163449} = (56, 56, 38, 1)$ lies on line ℓ_6
453 : $P_{163514} = (57, 57, 38, 1)$ lies on line ℓ_7
454 : $P_{163905} = (0, 0, 39, 1)$ lies on line ℓ_3
455 : $P_{163961} = (56, 0, 39, 1)$ lies on line ℓ_4
456 : $P_{163962} = (57, 0, 39, 1)$ lies on line ℓ_5
457 : $P_{165608} = (39, 26, 39, 1)$ lies on line ℓ_9
458 : $P_{167545} = (56, 56, 39, 1)$ lies on line ℓ_6
459 : $P_{167610} = (57, 57, 39, 1)$ lies on line ℓ_7
460 : $P_{167848} = (39, 61, 39, 1)$ lies on line ℓ_8
461 : $P_{168001} = (0, 0, 40, 1)$ lies on line ℓ_3
462 : $P_{168057} = (56, 0, 40, 1)$ lies on line ℓ_4
463 : $P_{168058} = (57, 0, 40, 1)$ lies on line ℓ_5
464 : $P_{169257} = (40, 19, 40, 1)$ lies on line ℓ_8
465 : $P_{171641} = (56, 56, 40, 1)$ lies on line ℓ_6
466 : $P_{171706} = (57, 57, 40, 1)$ lies on line ℓ_7
467 : $P_{171817} = (40, 59, 40, 1)$ lies on line ℓ_9
468 : $P_{172097} = (0, 0, 41, 1)$ lies on line ℓ_3
469 : $P_{172153} = (56, 0, 41, 1)$ lies on line ℓ_4
470 : $P_{172154} = (57, 0, 41, 1)$ lies on line ℓ_5
471 : $P_{172266} = (41, 2, 41, 1)$ lies on line ℓ_9
472 : $P_{174890} = (41, 43, 41, 1)$ lies on line ℓ_8
473 : $P_{175737} = (56, 56, 41, 1)$ lies on line ℓ_6
474 : $P_{175802} = (57, 57, 41, 1)$ lies on line ℓ_7
475 : $P_{176193} = (0, 0, 42, 1)$ lies on line ℓ_3
476 : $P_{176249} = (56, 0, 42, 1)$ lies on line ℓ_4
477 : $P_{176250} = (57, 0, 42, 1)$ lies on line ℓ_5
478 : $P_{176363} = (42, 2, 42, 1)$ lies on line ℓ_8
479 : $P_{178795} = (42, 40, 42, 1)$ lies on line ℓ_9
480 : $P_{179833} = (56, 56, 42, 1)$ lies on line ℓ_6
481 : $P_{179898} = (57, 57, 42, 1)$ lies on line ℓ_7
482 : $P_{180289} = (0, 0, 43, 1)$ lies on line ℓ_3
483 : $P_{180345} = (56, 0, 43, 1)$ lies on line ℓ_4
484 : $P_{180346} = (57, 0, 43, 1)$ lies on line ℓ_5
485 : $P_{181420} = (43, 17, 43, 1)$ lies on line ℓ_9

486 : $P_{183929} = (56, 56, 43, 1)$ lies on line ℓ_6
487 : $P_{183994} = (57, 57, 43, 1)$ lies on line ℓ_7
488 : $P_{184044} = (43, 58, 43, 1)$ lies on line ℓ_8
489 : $P_{184385} = (0, 0, 44, 1)$ lies on line ℓ_3
490 : $P_{184441} = (56, 0, 44, 1)$ lies on line ℓ_4
491 : $P_{184442} = (57, 0, 44, 1)$ lies on line ℓ_5
492 : $P_{186285} = (44, 29, 44, 1)$ lies on line ℓ_9
493 : $P_{187565} = (44, 49, 44, 1)$ lies on line ℓ_8
494 : $P_{188025} = (56, 56, 44, 1)$ lies on line ℓ_6
495 : $P_{188090} = (57, 57, 44, 1)$ lies on line ℓ_7
496 : $P_{188481} = (0, 0, 45, 1)$ lies on line ℓ_3
497 : $P_{188537} = (56, 0, 45, 1)$ lies on line ℓ_4
498 : $P_{188538} = (57, 0, 45, 1)$ lies on line ℓ_5
499 : $P_{189102} = (45, 9, 45, 1)$ lies on line ℓ_8
500 : $P_{190830} = (45, 36, 45, 1)$ lies on line ℓ_9
501 : $P_{192121} = (56, 56, 45, 1)$ lies on line ℓ_6
502 : $P_{192186} = (57, 57, 45, 1)$ lies on line ℓ_7
503 : $P_{192577} = (0, 0, 46, 1)$ lies on line ℓ_3
504 : $P_{192633} = (56, 0, 46, 1)$ lies on line ℓ_4
505 : $P_{192634} = (57, 0, 46, 1)$ lies on line ℓ_5
506 : $P_{193519} = (46, 14, 46, 1)$ lies on line ℓ_9
507 : $P_{194671} = (46, 32, 46, 1)$ lies on line ℓ_8
508 : $P_{196217} = (56, 56, 46, 1)$ lies on line ℓ_6
509 : $P_{196282} = (57, 57, 46, 1)$ lies on line ℓ_7
510 : $P_{196673} = (0, 0, 47, 1)$ lies on line ℓ_3
511 : $P_{196729} = (56, 0, 47, 1)$ lies on line ℓ_4
512 : $P_{196730} = (57, 0, 47, 1)$ lies on line ℓ_5
513 : $P_{198256} = (47, 24, 47, 1)$ lies on line ℓ_8
514 : $P_{200240} = (47, 55, 47, 1)$ lies on line ℓ_9
515 : $P_{200313} = (56, 56, 47, 1)$ lies on line ℓ_6
516 : $P_{200378} = (57, 57, 47, 1)$ lies on line ℓ_7
517 : $P_{200769} = (0, 0, 48, 1)$ lies on line ℓ_3
518 : $P_{200825} = (56, 0, 48, 1)$ lies on line ℓ_4
519 : $P_{200826} = (57, 0, 48, 1)$ lies on line ℓ_5
520 : $P_{202673} = (48, 29, 48, 1)$ lies on line ℓ_8
521 : $P_{203697} = (48, 45, 48, 1)$ lies on line ℓ_9
522 : $P_{204409} = (56, 56, 48, 1)$ lies on line ℓ_6
523 : $P_{204474} = (57, 57, 48, 1)$ lies on line ℓ_7
524 : $P_{204865} = (0, 0, 49, 1)$ lies on line ℓ_3
525 : $P_{204921} = (56, 0, 49, 1)$ lies on line ℓ_4
526 : $P_{204922} = (57, 0, 49, 1)$ lies on line ℓ_5
527 : $P_{206194} = (49, 20, 49, 1)$ lies on line ℓ_9
528 : $P_{207282} = (49, 37, 49, 1)$ lies on line ℓ_8
529 : $P_{208505} = (56, 56, 49, 1)$ lies on line ℓ_6
530 : $P_{208570} = (57, 57, 49, 1)$ lies on line ℓ_7
531 : $P_{208961} = (0, 0, 50, 1)$ lies on line ℓ_3
532 : $P_{209017} = (56, 0, 50, 1)$ lies on line ℓ_4
533 : $P_{209018} = (57, 0, 50, 1)$ lies on line ℓ_5
534 : $P_{209779} = (50, 12, 50, 1)$ lies on line ℓ_8
535 : $P_{212601} = (56, 56, 50, 1)$ lies on line ℓ_6
536 : $P_{212666} = (57, 57, 50, 1)$ lies on line ℓ_7
537 : $P_{212979} = (50, 62, 50, 1)$ lies on line ℓ_9
538 : $P_{213057} = (0, 0, 51, 1)$ lies on line ℓ_3
539 : $P_{213113} = (56, 0, 51, 1)$ lies on line ℓ_4

540 : $P_{213114} = (57, 0, 51, 1)$ lies on line ℓ_5
541 : $P_{213556} = (51, 7, 51, 1)$ lies on line ℓ_9
542 : $P_{216436} = (51, 52, 51, 1)$ lies on line ℓ_8
543 : $P_{216697} = (56, 56, 51, 1)$ lies on line ℓ_6
544 : $P_{216762} = (57, 57, 51, 1)$ lies on line ℓ_7
545 : $P_{217153} = (0, 0, 52, 1)$ lies on line ℓ_3
546 : $P_{217209} = (56, 0, 52, 1)$ lies on line ℓ_4
547 : $P_{217210} = (57, 0, 52, 1)$ lies on line ℓ_5
548 : $P_{217909} = (52, 11, 52, 1)$ lies on line ℓ_9
549 : $P_{220793} = (56, 56, 52, 1)$ lies on line ℓ_6
550 : $P_{220858} = (57, 57, 52, 1)$ lies on line ℓ_7
551 : $P_{221237} = (52, 63, 52, 1)$ lies on line ℓ_8
552 : $P_{221249} = (0, 0, 53, 1)$ lies on line ℓ_3
553 : $P_{221305} = (56, 0, 53, 1)$ lies on line ℓ_4
554 : $P_{221306} = (57, 0, 53, 1)$ lies on line ℓ_5
555 : $P_{221750} = (53, 7, 53, 1)$ lies on line ℓ_8
556 : $P_{224502} = (53, 50, 53, 1)$ lies on line ℓ_9
557 : $P_{224889} = (56, 56, 53, 1)$ lies on line ℓ_6
558 : $P_{224954} = (57, 57, 53, 1)$ lies on line ℓ_7
559 : $P_{225345} = (0, 0, 54, 1)$ lies on line ℓ_3
560 : $P_{225401} = (56, 0, 54, 1)$ lies on line ℓ_4
561 : $P_{225402} = (57, 0, 54, 1)$ lies on line ℓ_5
562 : $P_{226935} = (54, 24, 54, 1)$ lies on line ℓ_9
563 : $P_{228343} = (54, 46, 54, 1)$ lies on line ℓ_8
564 : $P_{228985} = (56, 56, 54, 1)$ lies on line ℓ_6
565 : $P_{229050} = (57, 57, 54, 1)$ lies on line ℓ_7
566 : $P_{229441} = (0, 0, 55, 1)$ lies on line ℓ_3
567 : $P_{229497} = (56, 0, 55, 1)$ lies on line ℓ_4
568 : $P_{229498} = (57, 0, 55, 1)$ lies on line ℓ_5
569 : $P_{230904} = (55, 22, 55, 1)$ lies on line ℓ_8
570 : $P_{231608} = (55, 33, 55, 1)$ lies on line ℓ_9
571 : $P_{233081} = (56, 56, 55, 1)$ lies on line ℓ_6
572 : $P_{233146} = (57, 57, 55, 1)$ lies on line ℓ_7
573 : $P_{233537} = (0, 0, 56, 1)$ lies on line ℓ_3
574 : $P_{233594} = (57, 0, 56, 1)$ lies on line ℓ_5
575 : $P_{237242} = (57, 57, 56, 1)$ lies on line ℓ_7
576 : $P_{237633} = (0, 0, 57, 1)$ lies on line ℓ_3
577 : $P_{237689} = (56, 0, 57, 1)$ lies on line ℓ_4
578 : $P_{241273} = (56, 56, 57, 1)$ lies on line ℓ_6
579 : $P_{241729} = (0, 0, 58, 1)$ lies on line ℓ_3
580 : $P_{241785} = (56, 0, 58, 1)$ lies on line ℓ_4

581 : $P_{241786} = (57, 0, 58, 1)$ lies on line ℓ_5
582 : $P_{243003} = (58, 19, 58, 1)$ lies on line ℓ_9
583 : $P_{244411} = (58, 41, 58, 1)$ lies on line ℓ_8
584 : $P_{245369} = (56, 56, 58, 1)$ lies on line ℓ_6
585 : $P_{245434} = (57, 57, 58, 1)$ lies on line ℓ_7
586 : $P_{245825} = (0, 0, 59, 1)$ lies on line ℓ_3
587 : $P_{245881} = (56, 0, 59, 1)$ lies on line ℓ_4
588 : $P_{245882} = (57, 0, 59, 1)$ lies on line ℓ_5
589 : $P_{246972} = (59, 17, 59, 1)$ lies on line ℓ_8
590 : $P_{248572} = (59, 42, 59, 1)$ lies on line ℓ_9
591 : $P_{249465} = (56, 56, 59, 1)$ lies on line ℓ_6
592 : $P_{249530} = (57, 57, 59, 1)$ lies on line ℓ_7
593 : $P_{249921} = (0, 0, 60, 1)$ lies on line ℓ_3
594 : $P_{249977} = (56, 0, 60, 1)$ lies on line ℓ_4
595 : $P_{249978} = (57, 0, 60, 1)$ lies on line ℓ_5
596 : $P_{251645} = (60, 26, 60, 1)$ lies on line ℓ_8
597 : $P_{252413} = (60, 38, 60, 1)$ lies on line ℓ_9
598 : $P_{253561} = (56, 56, 60, 1)$ lies on line ℓ_6
599 : $P_{253626} = (57, 57, 60, 1)$ lies on line ℓ_7
600 : $P_{254017} = (0, 0, 61, 1)$ lies on line ℓ_3
601 : $P_{254073} = (56, 0, 61, 1)$ lies on line ℓ_4
602 : $P_{254074} = (57, 0, 61, 1)$ lies on line ℓ_5
603 : $P_{256062} = (61, 31, 61, 1)$ lies on line ℓ_9
604 : $P_{256254} = (61, 34, 61, 1)$ lies on line ℓ_8
605 : $P_{257657} = (56, 56, 61, 1)$ lies on line ℓ_6
606 : $P_{257722} = (57, 57, 61, 1)$ lies on line ℓ_7
607 : $P_{258113} = (0, 0, 62, 1)$ lies on line ℓ_3
608 : $P_{258169} = (56, 0, 62, 1)$ lies on line ℓ_4
609 : $P_{258170} = (57, 0, 62, 1)$ lies on line ℓ_5
610 : $P_{258879} = (62, 11, 62, 1)$ lies on line ℓ_8
611 : $P_{261567} = (62, 53, 62, 1)$ lies on line ℓ_9
612 : $P_{261753} = (56, 56, 62, 1)$ lies on line ℓ_6
613 : $P_{261818} = (57, 57, 62, 1)$ lies on line ℓ_7
614 : $P_{262209} = (0, 0, 63, 1)$ lies on line ℓ_3
615 : $P_{262265} = (56, 0, 63, 1)$ lies on line ℓ_4
616 : $P_{262266} = (57, 0, 63, 1)$ lies on line ℓ_5
617 : $P_{263040} = (63, 12, 63, 1)$ lies on line ℓ_9
618 : $P_{265536} = (63, 51, 63, 1)$ lies on line ℓ_8
619 : $P_{265849} = (56, 56, 63, 1)$ lies on line ℓ_6
620 : $P_{265914} = (57, 57, 63, 1)$ 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 9
─┼───────────────────
0|0 1 1 1 0 0 0 0 1 1
1|1 0 1 0 1 0 1 0 0 0
2|1 1 0 0 0 0 1 0 1 0 0
3|1 0 0 0 1 1 1 1 0 0
4|0 1 0 1 0 1 1 1 0 1
5|0 0 1 1 1 0 1 1 1 0
6|0 1 0 1 1 1 0 1 1 0
7|0 0 1 1 1 1 1 0 0 1
8|1 0 0 0 0 1 1 0 0 1
9|1 0 0 0 1 0 0 1 1 0
```

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_8	ℓ_9
in point	P_1	P_1	P_3	P_{4226}	P_{4226}

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_4	ℓ_6
in point	P_1	P_1	P_{4218}	P_{7802}

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_5	ℓ_7
in point	P_1	P_1	P_{4219}	P_{7867}

Line 3 intersects

Line	ℓ_0	ℓ_4	ℓ_5	ℓ_6	ℓ_7
in point	P_3	P_2	P_2	P_2	P_2

Line 4 intersects

Line	ℓ_1	ℓ_3	ℓ_5	ℓ_6	ℓ_7	ℓ_9
in point	P_{4218}	P_2	P_2	P_2	P_2	P_{233593}

Line 5 intersects

Line	ℓ_2	ℓ_3	ℓ_4	ℓ_6	ℓ_7	ℓ_8
in point	P_{4219}	P_2	P_2	P_2	P_2	P_{237690}

Line 6 intersects

Line	ℓ_1	ℓ_3	ℓ_4	ℓ_5	ℓ_7	ℓ_8
in point	P_{7802}	P_2	P_2	P_2	P_2	P_{237177}

Line 7 intersects

Line	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_9
in point	P_{7867}	P_2	P_2	P_2	P_2	P_{241338}

Line 8 intersects

Line	ℓ_0	ℓ_5	ℓ_6	ℓ_9
in point	P_{4226}	P_{237690}	P_{237177}	P_{4226}

Line 9 intersects

Line	ℓ_0	ℓ_4	ℓ_7	ℓ_8
in point	P_{4226}	P_{233593}	P_{241338}	P_{4226}

The surface has 4353 points:
Too many to print.