

Rank-65871 over GF(32)

January 15, 2021

The equation

The equation of the surface is :

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

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

The point rank of the equation over GF(32) is -2112813019

General information

Number of lines	2
Number of points	1057
Number of singular points	2
Number of Eckardt points	0
Number of double points	1
Number of single points	64
Number of points off lines	992
Number of Hesse planes	0
Number of axes	0
Type of points on lines	33^2
Type of lines on points	$2, 1^{64}, 0^{992}$

Singular Points

The surface has 2 singular points:

$$0 : P_{1059} = \mathbf{P}(1, 0, 0, 1) = \mathbf{P}(1, 0, 0, 1)$$

$$1 : P_{1091} = \mathbf{P}(1, 1, 0, 1) = \mathbf{P}(1, 1, 0, 1)$$

The 2 Lines

The lines and their Pluecker coordinates are:

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

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{33824} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{33824} = \mathbf{Pl}(1, 0, 0, 1, 0, 0)_{66}$$

Rank of lines: (0, 33824)

Rank of points on Klein quadric: (0, 66)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 1 Double points:

The double points on the surface are:

$$P_1 = (0, 1, 0, 0) = \ell_0 \cap \ell_1$$

Single Points

The surface has 64 single points:

The single points on the surface are:

0 : $P_0 = (1, 0, 0, 0)$ lies on line ℓ_0
1 : $P_5 = (1, 1, 0, 0)$ lies on line ℓ_0
2 : $P_6 = (2, 1, 0, 0)$ lies on line ℓ_0
3 : $P_7 = (3, 1, 0, 0)$ lies on line ℓ_0
4 : $P_8 = (4, 1, 0, 0)$ lies on line ℓ_0
5 : $P_9 = (5, 1, 0, 0)$ lies on line ℓ_0
6 : $P_{10} = (6, 1, 0, 0)$ lies on line ℓ_0
7 : $P_{11} = (7, 1, 0, 0)$ lies on line ℓ_0
8 : $P_{12} = (8, 1, 0, 0)$ lies on line ℓ_0
9 : $P_{13} = (9, 1, 0, 0)$ lies on line ℓ_0
10 : $P_{14} = (10, 1, 0, 0)$ lies on line ℓ_0
11 : $P_{15} = (11, 1, 0, 0)$ lies on line ℓ_0
12 : $P_{16} = (12, 1, 0, 0)$ lies on line ℓ_0
13 : $P_{17} = (13, 1, 0, 0)$ lies on line ℓ_0
14 : $P_{18} = (14, 1, 0, 0)$ lies on line ℓ_0
15 : $P_{19} = (15, 1, 0, 0)$ lies on line ℓ_0
16 : $P_{20} = (16, 1, 0, 0)$ lies on line ℓ_0
17 : $P_{21} = (17, 1, 0, 0)$ lies on line ℓ_0
18 : $P_{22} = (18, 1, 0, 0)$ lies on line ℓ_0
19 : $P_{23} = (19, 1, 0, 0)$ lies on line ℓ_0
20 : $P_{24} = (20, 1, 0, 0)$ lies on line ℓ_0
21 : $P_{25} = (21, 1, 0, 0)$ lies on line ℓ_0
22 : $P_{26} = (22, 1, 0, 0)$ lies on line ℓ_0
23 : $P_{27} = (23, 1, 0, 0)$ lies on line ℓ_0
24 : $P_{28} = (24, 1, 0, 0)$ lies on line ℓ_0
25 : $P_{29} = (25, 1, 0, 0)$ lies on line ℓ_0
26 : $P_{30} = (26, 1, 0, 0)$ lies on line ℓ_0
27 : $P_{31} = (27, 1, 0, 0)$ lies on line ℓ_0
28 : $P_{32} = (28, 1, 0, 0)$ lies on line ℓ_0

29 : $P_{33} = (29, 1, 0, 0)$ lies on line ℓ_0
30 : $P_{34} = (30, 1, 0, 0)$ lies on line ℓ_0
31 : $P_{35} = (31, 1, 0, 0)$ lies on line ℓ_0
32 : $P_{1059} = (1, 0, 0, 1)$ lies on line ℓ_1
33 : $P_{1091} = (1, 1, 0, 1)$ lies on line ℓ_1
34 : $P_{1123} = (1, 2, 0, 1)$ lies on line ℓ_1
35 : $P_{1155} = (1, 3, 0, 1)$ lies on line ℓ_1
36 : $P_{1187} = (1, 4, 0, 1)$ lies on line ℓ_1
37 : $P_{1219} = (1, 5, 0, 1)$ lies on line ℓ_1
38 : $P_{1251} = (1, 6, 0, 1)$ lies on line ℓ_1
39 : $P_{1283} = (1, 7, 0, 1)$ lies on line ℓ_1
40 : $P_{1315} = (1, 8, 0, 1)$ lies on line ℓ_1
41 : $P_{1347} = (1, 9, 0, 1)$ lies on line ℓ_1
42 : $P_{1379} = (1, 10, 0, 1)$ lies on line ℓ_1
43 : $P_{1411} = (1, 11, 0, 1)$ lies on line ℓ_1
44 : $P_{1443} = (1, 12, 0, 1)$ lies on line ℓ_1
45 : $P_{1475} = (1, 13, 0, 1)$ lies on line ℓ_1
46 : $P_{1507} = (1, 14, 0, 1)$ lies on line ℓ_1
47 : $P_{1539} = (1, 15, 0, 1)$ lies on line ℓ_1
48 : $P_{1571} = (1, 16, 0, 1)$ lies on line ℓ_1
49 : $P_{1603} = (1, 17, 0, 1)$ lies on line ℓ_1
50 : $P_{1635} = (1, 18, 0, 1)$ lies on line ℓ_1
51 : $P_{1667} = (1, 19, 0, 1)$ lies on line ℓ_1
52 : $P_{1699} = (1, 20, 0, 1)$ lies on line ℓ_1
53 : $P_{1731} = (1, 21, 0, 1)$ lies on line ℓ_1
54 : $P_{1763} = (1, 22, 0, 1)$ lies on line ℓ_1
55 : $P_{1795} = (1, 23, 0, 1)$ lies on line ℓ_1
56 : $P_{1827} = (1, 24, 0, 1)$ lies on line ℓ_1
57 : $P_{1859} = (1, 25, 0, 1)$ lies on line ℓ_1

58 : $P_{1891} = (1, 26, 0, 1)$ lies on line ℓ_1
59 : $P_{1923} = (1, 27, 0, 1)$ lies on line ℓ_1
60 : $P_{1955} = (1, 28, 0, 1)$ lies on line ℓ_1
61 : $P_{1987} = (1, 29, 0, 1)$ lies on line ℓ_1

62 : $P_{2019} = (1, 30, 0, 1)$ lies on line ℓ_1
63 : $P_{2051} = (1, 31, 0, 1)$ lies on line ℓ_1

The single points on the surface are:

Points on surface but on no line

The surface has 992 points not on any line:

The points on the surface but not on lines are:

0 : $P_{67} = (0, 1, 1, 0)$	40 : $P_{3446} = (21, 10, 2, 1)$
1 : $P_{115} = (16, 2, 1, 0)$	41 : $P_{3458} = (1, 11, 2, 1)$
2 : $P_{162} = (31, 3, 1, 0)$	42 : $P_{3480} = (23, 11, 2, 1)$
3 : $P_{176} = (13, 4, 1, 0)$	43 : $P_{3634} = (17, 16, 2, 1)$
4 : $P_{213} = (18, 5, 1, 0)$	44 : $P_{3637} = (20, 16, 2, 1)$
5 : $P_{235} = (8, 6, 1, 0)$	45 : $P_{3658} = (9, 17, 2, 1)$
6 : $P_{270} = (11, 7, 1, 0)$	46 : $P_{3663} = (14, 17, 2, 1)$
7 : $P_{321} = (30, 8, 1, 0)$	47 : $P_{3699} = (18, 18, 2, 1)$
8 : $P_{336} = (13, 9, 1, 0)$	48 : $P_{3700} = (19, 18, 2, 1)$
9 : $P_{374} = (19, 10, 1, 0)$	49 : $P_{3780} = (3, 21, 2, 1)$
10 : $P_{414} = (27, 11, 1, 0)$	50 : $P_{3789} = (12, 21, 2, 1)$
11 : $P_{430} = (11, 12, 1, 0)$	51 : $P_{3812} = (3, 22, 2, 1)$
12 : $P_{453} = (2, 13, 1, 0)$	52 : $P_{3819} = (10, 22, 2, 1)$
13 : $P_{491} = (8, 14, 1, 0)$	53 : $P_{3882} = (9, 24, 2, 1)$
14 : $P_{517} = (2, 15, 1, 0)$	54 : $P_{3901} = (28, 24, 2, 1)$
15 : $P_{574} = (27, 16, 1, 0)$	55 : $P_{3917} = (12, 25, 2, 1)$
16 : $P_{588} = (9, 17, 1, 0)$	56 : $P_{3932} = (27, 25, 2, 1)$
17 : $P_{627} = (16, 18, 1, 0)$	57 : $P_{4011} = (10, 28, 2, 1)$
18 : $P_{657} = (14, 19, 1, 0)$	58 : $P_{4024} = (23, 28, 2, 1)$
19 : $P_{685} = (10, 20, 1, 0)$	59 : $P_{4033} = (0, 29, 2, 1)$
20 : $P_{722} = (15, 21, 1, 0)$	60 : $P_{4064} = (31, 29, 2, 1)$
21 : $P_{769} = (30, 22, 1, 0)$	61 : $P_{4111} = (14, 31, 2, 1)$
22 : $P_{789} = (18, 23, 1, 0)$	62 : $P_{4118} = (21, 31, 2, 1)$
23 : $P_{812} = (9, 24, 1, 0)$	63 : $P_{4139} = (10, 0, 3, 1)$
24 : $P_{854} = (19, 25, 1, 0)$	64 : $P_{4209} = (16, 2, 3, 1)$
25 : $P_{882} = (15, 26, 1, 0)$	65 : $P_{4215} = (22, 2, 3, 1)$
26 : $P_{903} = (4, 27, 1, 0)$	66 : $P_{4278} = (21, 4, 3, 1)$
27 : $P_{962} = (31, 28, 1, 0)$	67 : $P_{4282} = (25, 4, 3, 1)$
28 : $P_{977} = (14, 29, 1, 0)$	68 : $P_{4338} = (17, 6, 3, 1)$
29 : $P_{1005} = (10, 30, 1, 0)$	69 : $P_{4348} = (27, 6, 3, 1)$
30 : $P_{1031} = (4, 31, 1, 0)$	70 : $P_{4421} = (4, 9, 3, 1)$
31 : $P_{2082} = (0, 0, 1, 1)$	71 : $P_{4448} = (31, 9, 3, 1)$
32 : $P_{3123} = (18, 0, 2, 1)$	72 : $P_{4459} = (10, 10, 3, 1)$
33 : $P_{3154} = (17, 1, 2, 1)$	73 : $P_{4469} = (20, 10, 3, 1)$
34 : $P_{3156} = (19, 1, 2, 1)$	74 : $P_{4549} = (4, 13, 3, 1)$
35 : $P_{3196} = (27, 2, 2, 1)$	75 : $P_{4564} = (19, 13, 3, 1)$
36 : $P_{3200} = (31, 2, 2, 1)$	76 : $P_{4676} = (3, 17, 3, 1)$
37 : $P_{3253} = (20, 4, 2, 1)$	77 : $P_{4694} = (21, 17, 3, 1)$
38 : $P_{3261} = (28, 4, 2, 1)$	78 : $P_{4708} = (3, 18, 3, 1)$
39 : $P_{3426} = (1, 10, 2, 1)$	79 : $P_{4721} = (16, 18, 3, 1)$

80 : $P_{4784} = (15, 20, 3, 1)$	134 : $P_{6470} = (5, 9, 5, 1)$
81 : $P_{4791} = (22, 20, 3, 1)$	135 : $P_{6478} = (13, 9, 5, 1)$
82 : $P_{4833} = (0, 22, 3, 1)$	136 : $P_{6545} = (16, 11, 5, 1)$
83 : $P_{4864} = (31, 22, 3, 1)$	137 : $P_{6547} = (18, 11, 5, 1)$
84 : $P_{4878} = (13, 23, 3, 1)$	138 : $P_{6566} = (5, 12, 5, 1)$
85 : $P_{4882} = (17, 23, 3, 1)$	139 : $P_{6589} = (28, 12, 5, 1)$
86 : $P_{4967} = (6, 26, 3, 1)$	140 : $P_{6639} = (14, 14, 5, 1)$
87 : $P_{4974} = (13, 26, 3, 1)$	141 : $P_{6654} = (29, 14, 5, 1)$
88 : $P_{5000} = (7, 27, 3, 1)$	142 : $P_{6695} = (6, 16, 5, 1)$
89 : $P_{5008} = (15, 27, 3, 1)$	143 : $P_{6717} = (28, 16, 5, 1)$
90 : $P_{5031} = (6, 28, 3, 1)$	144 : $P_{6793} = (8, 19, 5, 1)$
91 : $P_{5032} = (7, 28, 3, 1)$	145 : $P_{6814} = (29, 19, 5, 1)$
92 : $P_{5082} = (25, 29, 3, 1)$	146 : $P_{6819} = (2, 20, 5, 1)$
93 : $P_{5084} = (27, 29, 3, 1)$	147 : $P_{6829} = (12, 20, 5, 1)$
94 : $P_{5108} = (19, 30, 3, 1)$	148 : $P_{6883} = (2, 22, 5, 1)$
95 : $P_{5109} = (20, 30, 3, 1)$	149 : $P_{6887} = (6, 22, 5, 1)$
96 : $P_{5162} = (9, 0, 4, 1)$	150 : $P_{6933} = (20, 23, 5, 1)$
97 : $P_{5193} = (8, 1, 4, 1)$	151 : $P_{6934} = (21, 23, 5, 1)$
98 : $P_{5197} = (12, 1, 4, 1)$	152 : $P_{6957} = (12, 24, 5, 1)$
99 : $P_{5283} = (2, 4, 4, 1)$	153 : $P_{6972} = (27, 24, 5, 1)$
100 : $P_{5299} = (18, 4, 4, 1)$	154 : $P_{6977} = (0, 25, 5, 1)$
101 : $P_{5347} = (2, 6, 4, 1)$	155 : $P_{6995} = (18, 25, 5, 1)$
102 : $P_{5371} = (26, 6, 4, 1)$	156 : $P_{7049} = (8, 27, 5, 1)$
103 : $P_{5388} = (11, 7, 4, 1)$	157 : $P_{7057} = (16, 27, 5, 1)$
104 : $P_{5400} = (23, 7, 4, 1)$	158 : $P_{7130} = (25, 29, 5, 1)$
105 : $P_{5449} = (8, 9, 4, 1)$	159 : $P_{7136} = (31, 29, 5, 1)$
106 : $P_{5450} = (9, 9, 4, 1)$	160 : $P_{7230} = (29, 0, 6, 1)$
107 : $P_{5548} = (11, 12, 4, 1)$	161 : $P_{7244} = (11, 1, 6, 1)$
108 : $P_{5567} = (30, 12, 4, 1)$	162 : $P_{7246} = (13, 1, 6, 1)$
109 : $P_{5581} = (12, 13, 4, 1)$	163 : $P_{7330} = (1, 4, 6, 1)$
110 : $P_{5598} = (29, 13, 4, 1)$	164 : $P_{7354} = (25, 4, 6, 1)$
111 : $P_{5602} = (1, 14, 4, 1)$	165 : $P_{7362} = (1, 5, 6, 1)$
112 : $P_{5629} = (28, 14, 4, 1)$	166 : $P_{7392} = (31, 5, 6, 1)$
113 : $P_{5634} = (1, 15, 4, 1)$	167 : $P_{7532} = (11, 10, 6, 1)$
114 : $P_{5657} = (24, 15, 4, 1)$	168 : $P_{7539} = (18, 10, 6, 1)$
115 : $P_{5688} = (23, 16, 4, 1)$	169 : $P_{7585} = (0, 12, 6, 1)$
116 : $P_{5694} = (29, 16, 4, 1)$	170 : $P_{7598} = (13, 12, 6, 1)$
117 : $P_{5757} = (28, 18, 4, 1)$	171 : $P_{7634} = (17, 13, 6, 1)$
118 : $P_{5759} = (30, 18, 4, 1)$	172 : $P_{7643} = (26, 13, 6, 1)$
119 : $P_{5857} = (0, 22, 4, 1)$	173 : $P_{7700} = (19, 15, 6, 1)$
120 : $P_{5875} = (18, 22, 4, 1)$	174 : $P_{7701} = (20, 15, 6, 1)$
121 : $P_{5903} = (14, 23, 4, 1)$	175 : $P_{7720} = (7, 16, 6, 1)$
122 : $P_{5913} = (24, 23, 4, 1)$	176 : $P_{7721} = (8, 16, 6, 1)$
123 : $P_{5958} = (5, 25, 4, 1)$	177 : $P_{7818} = (9, 19, 6, 1)$
124 : $P_{5967} = (14, 25, 4, 1)$	178 : $P_{7821} = (12, 19, 6, 1)$
125 : $P_{6054} = (5, 28, 4, 1)$	179 : $P_{7944} = (7, 23, 6, 1)$
126 : $P_{6075} = (26, 28, 4, 1)$	180 : $P_{7963} = (26, 23, 6, 1)$
127 : $P_{6191} = (14, 0, 5, 1)$	181 : $P_{7977} = (8, 24, 6, 1)$
128 : $P_{6262} = (21, 2, 5, 1)$	182 : $P_{7987} = (18, 24, 6, 1)$
129 : $P_{6272} = (31, 2, 5, 1)$	183 : $P_{8042} = (9, 26, 6, 1)$
130 : $P_{6293} = (20, 3, 5, 1)$	184 : $P_{8064} = (31, 26, 6, 1)$
131 : $P_{6300} = (27, 3, 5, 1)$	185 : $P_{8069} = (4, 27, 6, 1)$
132 : $P_{6318} = (13, 4, 5, 1)$	186 : $P_{8085} = (20, 27, 6, 1)$
133 : $P_{6330} = (25, 4, 5, 1)$	187 : $P_{8114} = (17, 28, 6, 1)$

188 : $P_{8116} = (19, 28, 6, 1)$
 189 : $P_{8154} = (25, 29, 6, 1)$
 190 : $P_{8158} = (29, 29, 6, 1)$
 191 : $P_{8197} = (4, 31, 6, 1)$
 192 : $P_{8205} = (12, 31, 6, 1)$
 193 : $P_{8228} = (3, 0, 7, 1)$
 194 : $P_{8306} = (17, 2, 7, 1)$
 195 : $P_{8320} = (31, 2, 7, 1)$
 196 : $P_{8324} = (3, 3, 7, 1)$
 197 : $P_{8331} = (10, 3, 7, 1)$
 198 : $P_{8368} = (15, 4, 7, 1)$
 199 : $P_{8372} = (19, 4, 7, 1)$
 200 : $P_{8523} = (10, 9, 7, 1)$
 201 : $P_{8529} = (16, 9, 7, 1)$
 202 : $P_{8592} = (15, 11, 7, 1)$
 203 : $P_{8604} = (27, 11, 7, 1)$
 204 : $P_{8629} = (20, 12, 7, 1)$
 205 : $P_{8630} = (21, 12, 7, 1)$
 206 : $P_{8695} = (22, 14, 7, 1)$
 207 : $P_{8698} = (25, 14, 7, 1)$
 208 : $P_{8741} = (4, 16, 7, 1)$
 209 : $P_{8764} = (27, 16, 7, 1)$
 210 : $P_{8840} = (7, 19, 7, 1)$
 211 : $P_{8850} = (17, 19, 7, 1)$
 212 : $P_{8869} = (4, 20, 7, 1)$
 213 : $P_{8872} = (7, 20, 7, 1)$
 214 : $P_{8929} = (0, 22, 7, 1)$
 215 : $P_{8942} = (13, 22, 7, 1)$
 216 : $P_{8980} = (19, 23, 7, 1)$
 217 : $P_{8986} = (25, 23, 7, 1)$
 218 : $P_{9013} = (20, 24, 7, 1)$
 219 : $P_{9015} = (22, 24, 7, 1)$
 220 : $P_{9041} = (16, 25, 7, 1)$
 221 : $P_{9046} = (21, 25, 7, 1)$
 222 : $P_{9095} = (6, 27, 7, 1)$
 223 : $P_{9102} = (13, 27, 7, 1)$
 224 : $P_{9159} = (6, 29, 7, 1)$
 225 : $P_{9184} = (31, 29, 7, 1)$
 226 : $P_{9262} = (13, 0, 8, 1)$
 227 : $P_{9321} = (8, 2, 8, 1)$
 228 : $P_{9337} = (24, 2, 8, 1)$
 229 : $P_{9483} = (10, 7, 8, 1)$
 230 : $P_{9496} = (23, 7, 8, 1)$
 231 : $P_{9525} = (20, 8, 8, 1)$
 232 : $P_{9535} = (30, 8, 8, 1)$
 233 : $P_{9566} = (29, 9, 8, 1)$
 234 : $P_{9568} = (31, 9, 8, 1)$
 235 : $P_{9577} = (8, 10, 8, 1)$
 236 : $P_{9587} = (18, 10, 8, 1)$
 237 : $P_{9655} = (22, 12, 8, 1)$
 238 : $P_{9658} = (25, 12, 8, 1)$
 239 : $P_{9675} = (10, 13, 8, 1)$
 240 : $P_{9678} = (13, 13, 8, 1)$
 241 : $P_{9764} = (3, 16, 8, 1)$

242 : $P_{9784} = (23, 16, 8, 1)$
 243 : $P_{9860} = (3, 19, 8, 1)$
 244 : $P_{9872} = (15, 19, 8, 1)$
 245 : $P_{9901} = (12, 20, 8, 1)$
 246 : $P_{9918} = (29, 20, 8, 1)$
 247 : $P_{9921} = (0, 21, 8, 1)$
 248 : $P_{9946} = (25, 21, 8, 1)$
 249 : $P_{9983} = (30, 22, 8, 1)$
 250 : $P_{9984} = (31, 22, 8, 1)$
 251 : $P_{10029} = (12, 24, 8, 1)$
 252 : $P_{10035} = (18, 24, 8, 1)$
 253 : $P_{10103} = (22, 26, 8, 1)$
 254 : $P_{10105} = (24, 26, 8, 1)$
 255 : $P_{10160} = (15, 28, 8, 1)$
 256 : $P_{10165} = (20, 28, 8, 1)$
 257 : $P_{10296} = (23, 0, 9, 1)$
 258 : $P_{10309} = (4, 1, 9, 1)$
 259 : $P_{10318} = (13, 1, 9, 1)$
 260 : $P_{10351} = (14, 2, 9, 1)$
 261 : $P_{10365} = (28, 2, 9, 1)$
 262 : $P_{10437} = (4, 5, 9, 1)$
 263 : $P_{10445} = (12, 5, 9, 1)$
 264 : $P_{10545} = (16, 8, 9, 1)$
 265 : $P_{10547} = (18, 8, 9, 1)$
 266 : $P_{10568} = (7, 9, 9, 1)$
 267 : $P_{10573} = (12, 9, 9, 1)$
 268 : $P_{10625} = (0, 11, 9, 1)$
 269 : $P_{10650} = (25, 11, 9, 1)$
 270 : $P_{10670} = (13, 12, 9, 1)$
 271 : $P_{10671} = (14, 12, 9, 1)$
 272 : $P_{10728} = (7, 14, 9, 1)$
 273 : $P_{10743} = (22, 14, 9, 1)$
 274 : $P_{10864} = (15, 18, 9, 1)$
 275 : $P_{10874} = (25, 18, 9, 1)$
 276 : $P_{11018} = (9, 23, 9, 1)$
 277 : $P_{11032} = (23, 23, 9, 1)$
 278 : $P_{11057} = (16, 24, 9, 1)$
 279 : $P_{11063} = (22, 24, 9, 1)$
 280 : $P_{11111} = (6, 26, 9, 1)$
 281 : $P_{11123} = (18, 26, 9, 1)$
 282 : $P_{11170} = (1, 28, 9, 1)$
 283 : $P_{11175} = (6, 28, 9, 1)$
 284 : $P_{11202} = (1, 29, 9, 1)$
 285 : $P_{11216} = (15, 29, 9, 1)$
 286 : $P_{11242} = (9, 30, 9, 1)$
 287 : $P_{11261} = (28, 30, 9, 1)$
 288 : $P_{11324} = (27, 0, 10, 1)$
 289 : $P_{11400} = (7, 3, 10, 1)$
 290 : $P_{11418} = (25, 3, 10, 1)$
 291 : $P_{11432} = (7, 4, 10, 1)$
 292 : $P_{11435} = (10, 4, 10, 1)$
 293 : $P_{11530} = (9, 7, 10, 1)$
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 699 : $P_{24496} = (15, 28, 22, 1)$
 700 : $P_{24511} = (30, 28, 22, 1)$
 701 : $P_{24621} = (12, 0, 23, 1)$
 702 : $P_{24689} = (16, 2, 23, 1)$
 703 : $P_{24700} = (27, 2, 23, 1)$
 704 : $P_{24793} = (24, 5, 23, 1)$
 705 : $P_{24794} = (25, 5, 23, 1)$
 706 : $P_{24812} = (11, 6, 23, 1)$
 707 : $P_{24823} = (22, 6, 23, 1)$
 708 : $P_{24885} = (20, 8, 23, 1)$
 709 : $P_{24894} = (29, 8, 23, 1)$
 710 : $P_{25005} = (12, 12, 23, 1)$
 711 : $P_{25012} = (19, 12, 23, 1)$
 712 : $P_{25028} = (3, 13, 23, 1)$
 713 : $P_{25036} = (11, 13, 23, 1)$
 714 : $P_{25060} = (3, 14, 23, 1)$
 715 : $P_{25080} = (23, 14, 23, 1)$
 716 : $P_{25125} = (4, 16, 23, 1)$
 717 : $P_{25143} = (22, 16, 23, 1)$
 718 : $P_{25194} = (9, 18, 23, 1)$
 719 : $P_{25201} = (16, 18, 23, 1)$
 720 : $P_{25249} = (0, 20, 23, 1)$
 721 : $P_{25253} = (4, 20, 23, 1)$
 722 : $P_{25295} = (14, 21, 23, 1)$
 723 : $P_{25310} = (29, 21, 23, 1)$
 724 : $P_{25432} = (23, 25, 23, 1)$
 725 : $P_{25436} = (27, 25, 23, 1)$
 726 : $P_{25482} = (9, 27, 23, 1)$
 727 : $P_{25487} = (14, 27, 23, 1)$

728 : $P_{25525} = (20, 28, 23, 1)$
 729 : $P_{25530} = (25, 28, 23, 1)$
 730 : $P_{25539} = (2, 29, 23, 1)$
 731 : $P_{25561} = (24, 29, 23, 1)$
 732 : $P_{25603} = (2, 31, 23, 1)$
 733 : $P_{25620} = (19, 31, 23, 1)$
 734 : $P_{25659} = (26, 0, 24, 1)$
 735 : $P_{25708} = (11, 2, 24, 1)$
 736 : $P_{25727} = (30, 2, 24, 1)$
 737 : $P_{25763} = (2, 4, 24, 1)$
 738 : $P_{25774} = (13, 4, 24, 1)$
 739 : $P_{25827} = (2, 6, 24, 1)$
 740 : $P_{25849} = (24, 6, 24, 1)$
 741 : $P_{25932} = (11, 9, 24, 1)$
 742 : $P_{25934} = (13, 9, 24, 1)$
 743 : $P_{25975} = (22, 10, 24, 1)$
 744 : $P_{25982} = (29, 10, 24, 1)$
 745 : $P_{26065} = (16, 13, 24, 1)$
 746 : $P_{26074} = (25, 13, 24, 1)$
 747 : $P_{26183} = (6, 17, 24, 1)$
 748 : $P_{26184} = (7, 17, 24, 1)$
 749 : $P_{26213} = (4, 18, 24, 1)$
 750 : $P_{26217} = (8, 18, 24, 1)$
 751 : $P_{26288} = (15, 20, 24, 1)$
 752 : $P_{26298} = (25, 20, 24, 1)$
 753 : $P_{26341} = (4, 22, 24, 1)$
 754 : $P_{26344} = (7, 22, 24, 1)$
 755 : $P_{26375} = (6, 23, 24, 1)$
 756 : $P_{26398} = (29, 23, 24, 1)$
 757 : $P_{26473} = (8, 26, 24, 1)$
 758 : $P_{26491} = (26, 26, 24, 1)$
 759 : $P_{26502} = (5, 27, 24, 1)$
 760 : $P_{26512} = (15, 27, 24, 1)$
 761 : $P_{26551} = (22, 28, 24, 1)$
 762 : $P_{26559} = (30, 28, 24, 1)$
 763 : $P_{26561} = (0, 29, 24, 1)$
 764 : $P_{26577} = (16, 29, 24, 1)$
 765 : $P_{26598} = (5, 30, 24, 1)$
 766 : $P_{26617} = (24, 30, 24, 1)$
 767 : $P_{26677} = (20, 0, 25, 1)$
 768 : $P_{26698} = (9, 1, 25, 1)$
 769 : $P_{26705} = (16, 1, 25, 1)$
 770 : $P_{26722} = (1, 2, 25, 1)$
 771 : $P_{26743} = (22, 2, 25, 1)$
 772 : $P_{26754} = (1, 3, 25, 1)$
 773 : $P_{26768} = (15, 3, 25, 1)$
 774 : $P_{26804} = (19, 4, 25, 1)$
 775 : $P_{26809} = (24, 4, 25, 1)$
 776 : $P_{26922} = (9, 8, 25, 1)$
 777 : $P_{26944} = (31, 8, 25, 1)$
 778 : $P_{27015} = (6, 11, 25, 1)$
 779 : $P_{27039} = (30, 11, 25, 1)$
 780 : $P_{27056} = (15, 12, 25, 1)$
 781 : $P_{27059} = (18, 12, 25, 1)$

782 : $P_{27075} = (2, 13, 25, 1)$
 783 : $P_{27079} = (6, 13, 25, 1)$
 784 : $P_{27139} = (2, 15, 25, 1)$
 785 : $P_{27154} = (17, 15, 25, 1)$
 786 : $P_{27174} = (5, 16, 25, 1)$
 787 : $P_{27181} = (12, 16, 25, 1)$
 788 : $P_{27201} = (0, 17, 25, 1)$
 789 : $P_{27217} = (16, 17, 25, 1)$
 790 : $P_{27317} = (20, 20, 25, 1)$
 791 : $P_{27319} = (22, 20, 25, 1)$
 792 : $P_{27334} = (5, 21, 25, 1)$
 793 : $P_{27359} = (30, 21, 25, 1)$
 794 : $P_{27412} = (19, 23, 25, 1)$
 795 : $P_{27424} = (31, 23, 25, 1)$
 796 : $P_{27565} = (12, 28, 25, 1)$
 797 : $P_{27577} = (24, 28, 25, 1)$
 798 : $P_{27634} = (17, 30, 25, 1)$
 799 : $P_{27635} = (18, 30, 25, 1)$
 800 : $P_{27689} = (8, 0, 26, 1)$
 801 : $P_{27752} = (7, 2, 26, 1)$
 802 : $P_{27767} = (22, 2, 26, 1)$
 803 : $P_{27848} = (7, 5, 26, 1)$
 804 : $P_{27867} = (26, 5, 26, 1)$
 805 : $P_{27884} = (11, 6, 26, 1)$
 806 : $P_{27902} = (29, 6, 26, 1)$
 807 : $P_{27943} = (6, 8, 26, 1)$
 808 : $P_{27945} = (8, 8, 26, 1)$
 809 : $P_{28081} = (16, 12, 26, 1)$
 810 : $P_{28090} = (25, 12, 26, 1)$
 811 : $P_{28108} = (11, 13, 26, 1)$
 812 : $P_{28121} = (24, 13, 26, 1)$
 813 : $P_{28135} = (6, 14, 26, 1)$
 814 : $P_{28159} = (30, 14, 26, 1)$
 815 : $P_{28195} = (2, 16, 26, 1)$
 816 : $P_{28223} = (30, 16, 26, 1)$
 817 : $P_{28259} = (2, 18, 26, 1)$
 818 : $P_{28272} = (15, 18, 26, 1)$
 819 : $P_{28334} = (13, 20, 26, 1)$
 820 : $P_{28343} = (22, 20, 26, 1)$
 821 : $P_{28377} = (24, 21, 26, 1)$
 822 : $P_{28378} = (25, 21, 26, 1)$
 823 : $P_{28486} = (5, 25, 26, 1)$
 824 : $P_{28494} = (13, 25, 26, 1)$
 825 : $P_{28549} = (4, 27, 26, 1)$
 826 : $P_{28574} = (29, 27, 26, 1)$
 827 : $P_{28582} = (5, 28, 26, 1)$
 828 : $P_{28593} = (16, 28, 26, 1)$
 829 : $P_{28609} = (0, 29, 26, 1)$
 830 : $P_{28624} = (15, 29, 26, 1)$
 831 : $P_{28677} = (4, 31, 26, 1)$
 832 : $P_{28699} = (26, 31, 26, 1)$
 833 : $P_{28736} = (31, 0, 27, 1)$
 834 : $P_{28742} = (5, 1, 27, 1)$
 835 : $P_{28767} = (30, 1, 27, 1)$

836 : $P_{28775} = (6, 2, 27, 1)$	890 : $P_{30461} = (28, 22, 28, 1)$
837 : $P_{28790} = (21, 2, 27, 1)$	891 : $P_{30538} = (9, 25, 28, 1)$
838 : $P_{28838} = (5, 4, 27, 1)$	892 : $P_{30558} = (29, 25, 28, 1)$
839 : $P_{28839} = (6, 4, 27, 1)$	893 : $P_{30597} = (4, 27, 28, 1)$
840 : $P_{28875} = (10, 5, 27, 1)$	894 : $P_{30606} = (13, 27, 28, 1)$
841 : $P_{28883} = (18, 5, 27, 1)$	895 : $P_{30725} = (4, 31, 28, 1)$
842 : $P_{28946} = (17, 7, 27, 1)$	896 : $P_{30739} = (18, 31, 28, 1)$
843 : $P_{28955} = (26, 7, 27, 1)$	897 : $P_{30778} = (25, 0, 29, 1)$
844 : $P_{28962} = (1, 8, 27, 1)$	898 : $P_{30787} = (2, 1, 29, 1)$
845 : $P_{28968} = (7, 8, 27, 1)$	899 : $P_{30816} = (31, 1, 29, 1)$
846 : $P_{28994} = (1, 9, 27, 1)$	900 : $P_{30822} = (5, 2, 29, 1)$
847 : $P_{29021} = (28, 9, 27, 1)$	901 : $P_{30843} = (26, 2, 29, 1)$
848 : $P_{29192} = (7, 15, 27, 1)$	902 : $P_{30849} = (0, 3, 29, 1)$
849 : $P_{29195} = (10, 15, 27, 1)$	903 : $P_{30851} = (2, 3, 29, 1)$
850 : $P_{29345} = (0, 20, 27, 1)$	904 : $P_{30894} = (13, 4, 29, 1)$
851 : $P_{29360} = (15, 20, 27, 1)$	905 : $P_{30903} = (22, 4, 29, 1)$
852 : $P_{29385} = (8, 21, 27, 1)$	906 : $P_{30922} = (9, 5, 29, 1)$
853 : $P_{29405} = (28, 21, 27, 1)$	907 : $P_{30928} = (15, 5, 29, 1)$
854 : $P_{29422} = (13, 22, 27, 1)$	908 : $P_{30982} = (5, 7, 29, 1)$
855 : $P_{29426} = (17, 22, 27, 1)$	909 : $P_{31005} = (28, 7, 29, 1)$
856 : $P_{29459} = (18, 23, 27, 1)$	910 : $P_{31044} = (3, 9, 29, 1)$
857 : $P_{29462} = (21, 23, 27, 1)$	911 : $P_{31054} = (13, 9, 29, 1)$
858 : $P_{29582} = (13, 27, 27, 1)$	912 : $P_{31076} = (3, 10, 29, 1)$
859 : $P_{29584} = (15, 27, 27, 1)$	913 : $P_{31088} = (15, 10, 29, 1)$
860 : $P_{29641} = (8, 29, 27, 1)$	914 : $P_{31138} = (1, 12, 29, 1)$
861 : $P_{29659} = (26, 29, 27, 1)$	915 : $P_{31146} = (9, 12, 29, 1)$
862 : $P_{29727} = (30, 31, 27, 1)$	916 : $P_{31170} = (1, 13, 29, 1)$
863 : $P_{29728} = (31, 31, 27, 1)$	917 : $P_{31189} = (20, 13, 29, 1)$
864 : $P_{29746} = (17, 0, 28, 1)$	918 : $P_{31339} = (10, 18, 29, 1)$
865 : $P_{29847} = (22, 3, 28, 1)$	919 : $P_{31351} = (22, 18, 29, 1)$
866 : $P_{29848} = (23, 3, 28, 1)$	920 : $P_{31436} = (11, 21, 29, 1)$
867 : $P_{29859} = (2, 4, 28, 1)$	921 : $P_{31439} = (14, 21, 29, 1)$
868 : $P_{29886} = (29, 4, 28, 1)$	922 : $P_{31531} = (10, 24, 29, 1)$
869 : $P_{29921} = (0, 6, 28, 1)$	923 : $P_{31547} = (26, 24, 29, 1)$
870 : $P_{29923} = (2, 6, 28, 1)$	924 : $P_{31573} = (20, 25, 29, 1)$
871 : $P_{29963} = (10, 7, 28, 1)$	925 : $P_{31578} = (25, 25, 29, 1)$
872 : $P_{29973} = (20, 7, 28, 1)$	926 : $P_{31631} = (14, 27, 29, 1)$
873 : $P_{30075} = (26, 10, 28, 1)$	927 : $P_{31645} = (28, 27, 29, 1)$
874 : $P_{30077} = (28, 10, 28, 1)$	928 : $P_{31724} = (11, 30, 29, 1)$
875 : $P_{30155} = (10, 13, 28, 1)$	929 : $P_{31744} = (31, 30, 29, 1)$
876 : $P_{30163} = (18, 13, 28, 1)$	930 : $P_{31781} = (4, 0, 30, 1)$
877 : $P_{30236} = (27, 15, 28, 1)$	931 : $P_{31853} = (12, 2, 30, 1)$
878 : $P_{30239} = (30, 15, 28, 1)$	932 : $P_{31862} = (21, 2, 30, 1)$
879 : $P_{30250} = (9, 16, 28, 1)$	933 : $P_{31909} = (4, 4, 30, 1)$
880 : $P_{30267} = (26, 16, 28, 1)$	934 : $P_{31924} = (19, 4, 30, 1)$
881 : $P_{30290} = (17, 17, 28, 1)$	935 : $P_{31957} = (20, 5, 30, 1)$
882 : $P_{30303} = (30, 17, 28, 1)$	936 : $P_{31966} = (29, 5, 30, 1)$
883 : $P_{30343} = (6, 19, 28, 1)$	937 : $P_{32010} = (9, 7, 30, 1)$
884 : $P_{30357} = (20, 19, 28, 1)$	938 : $P_{32026} = (25, 7, 30, 1)$
885 : $P_{30392} = (23, 20, 28, 1)$	939 : $P_{32221} = (28, 13, 30, 1)$
886 : $P_{30396} = (27, 20, 28, 1)$	940 : $P_{32223} = (30, 13, 30, 1)$
887 : $P_{30407} = (6, 21, 28, 1)$	941 : $P_{32234} = (9, 14, 30, 1)$
888 : $P_{30423} = (22, 21, 28, 1)$	942 : $P_{32237} = (12, 14, 30, 1)$
889 : $P_{30446} = (13, 22, 28, 1)$	943 : $P_{32341} = (20, 17, 30, 1)$

944 : $P_{32349} = (28, 17, 30, 1)$
 945 : $P_{32400} = (15, 19, 30, 1)$
 946 : $P_{32415} = (30, 19, 30, 1)$
 947 : $P_{32427} = (10, 20, 30, 1)$
 948 : $P_{32428} = (11, 20, 30, 1)$
 949 : $P_{32532} = (19, 23, 30, 1)$
 950 : $P_{32534} = (21, 23, 30, 1)$
 951 : $P_{32545} = (0, 24, 30, 1)$
 952 : $P_{32574} = (29, 24, 30, 1)$
 953 : $P_{32582} = (5, 25, 30, 1)$
 954 : $P_{32583} = (6, 25, 30, 1)$
 955 : $P_{32678} = (5, 28, 30, 1)$
 956 : $P_{32688} = (15, 28, 30, 1)$
 957 : $P_{32747} = (10, 30, 30, 1)$
 958 : $P_{32762} = (25, 30, 30, 1)$
 959 : $P_{32775} = (6, 31, 30, 1)$
 960 : $P_{32780} = (11, 31, 30, 1)$
 961 : $P_{32822} = (21, 0, 31, 1)$
 962 : $P_{32837} = (4, 1, 31, 1)$
 963 : $P_{32860} = (27, 1, 31, 1)$
 964 : $P_{32965} = (4, 5, 31, 1)$
 965 : $P_{32969} = (8, 5, 31, 1)$
 966 : $P_{32994} = (1, 6, 31, 1)$
 967 : $P_{33002} = (9, 6, 31, 1)$
 968 : $P_{33026} = (1, 7, 31, 1)$

969 : $P_{33047} = (22, 7, 31, 1)$
 970 : $P_{33077} = (20, 8, 31, 1)$
 971 : $P_{33080} = (23, 8, 31, 1)$
 972 : $P_{33128} = (7, 10, 31, 1)$
 973 : $P_{33152} = (31, 10, 31, 1)$
 974 : $P_{33224} = (7, 13, 31, 1)$
 975 : $P_{33225} = (8, 13, 31, 1)$
 976 : $P_{33290} = (9, 15, 31, 1)$
 977 : $P_{33310} = (29, 15, 31, 1)$
 978 : $P_{33360} = (15, 17, 31, 1)$
 979 : $P_{33367} = (22, 17, 31, 1)$
 980 : $P_{33377} = (0, 18, 31, 1)$
 981 : $P_{33406} = (29, 18, 31, 1)$
 982 : $P_{33494} = (21, 21, 31, 1)$
 983 : $P_{33504} = (31, 21, 31, 1)$
 984 : $P_{33638} = (5, 26, 31, 1)$
 985 : $P_{33660} = (27, 26, 31, 1)$
 986 : $P_{33699} = (2, 28, 31, 1)$
 987 : $P_{33717} = (20, 28, 31, 1)$
 988 : $P_{33763} = (2, 30, 31, 1)$
 989 : $P_{33776} = (15, 30, 31, 1)$
 990 : $P_{33798} = (5, 31, 31, 1)$
 991 : $P_{33816} = (23, 31, 31, 1)$

Line Intersection Graph

	0 1
0	0 1
1	1 0

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	ℓ_1
in point	P_1

Line 1 intersects

Line	ℓ_0
in point	P_1

The surface has 1057 points:

Too many to print.