Rank-65859 over GF(32)

January 15, 2021

The equation

The equation of the surface is :

$$X_0^2X_3 + X_1^2X_2 + X_0X_1X_2 = 0$$

(0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(32) is -2112846811

General information

Number of lines	35
Number of points	1089
Number of singular points	33
Number of Eckardt points	16
Number of double points	34
Number of single points	1039
Number of points off lines	0
Number of Hesse planes	0
Number of axes	0
Type of points on lines	33^{35}
Type of lines on points	3^{16}, 2^{34}, 1^{1039}

Singular Points

The surface has 33 singular points:

0 : $P_2 = \mathbf{P}(0,0,1,0) = \mathbf{P}(0,0,1,0)$
1 : $P_3 = \mathbf{P}(0,0,0,1) = \mathbf{P}(0,0,0,1)$
2 : $P_{2082} = \mathbf{P}(0,0,1,1) = \mathbf{P}(0,0,1,1)$
3 : $P_{3105} = \mathbf{P}(0,0,\eta,1) = \mathbf{P}(0,0,2,1)$
4 : $P_{4129} = \mathbf{P}(0,0,\eta^{18},1) = \mathbf{P}(0,0,3,1)$
5 : $P_{5153} = \mathbf{P}(0,0,\eta^{2},1) = \mathbf{P}(0,0,4,1)$
6 : $P_{6177} = \mathbf{P}(0,0,\eta^{5},1) = \mathbf{P}(0,0,5,1)$
7 : $P_{7201} = \mathbf{P}(0,0,\eta^{19},1) = \mathbf{P}(0,0,6,1)$
8 : $P_{8225} = \mathbf{P}(0,0,\eta^{11},1) = \mathbf{P}(0,0,7,1)$
9 : $P_{9249} = \mathbf{P}(0,0,\eta^{3},1) = \mathbf{P}(0,0,8,1)$
10 : $P_{10273} = \mathbf{P}(0,0,\eta^{29},1) = \mathbf{P}(0,0,9,1)$
11 : $P_{11297} = \mathbf{P}(0,0,\eta^{6},1) = \mathbf{P}(0,0,10,1)$
12 : $P_{12321} = \mathbf{P}(0,0,\eta^{27},1) = \mathbf{P}(0,0,11,1)$
13 : $P_{13345} = \mathbf{P}(0,0,\eta^{20},1) = \mathbf{P}(0,0,12,1)$
14 : $P_{14369} = \mathbf{P}(0,0,\eta^{8},1) = \mathbf{P}(0,0,13,1)$
15 : $P_{15393} = \mathbf{P}(0,0,\eta^{12},1) = \mathbf{P}(0,0,14,1)$
16 : $P_{16417} = \mathbf{P}(0,0,\eta^{23},1) = \mathbf{P}(0,0,15,1)$
17 : $P_{17441} = \mathbf{P}(0,0,\eta^{4},1) = \mathbf{P}(0,0,16,1)$

$18: P_{18465} = \mathbf{P}(0,0,\eta^{10},1) = \mathbf{P}(0,0,17,1)$
$19: P_{19489} = \mathbf{P}(0,0,\eta^{30},1) = \mathbf{P}(0,0,18,1)$
$20: P_{20513} = \mathbf{P}(0,0,\eta^{17},1) = \mathbf{P}(0,0,19,1)$
$21: P_{21537} = \mathbf{P}(0,0,\eta^{7},1) = \mathbf{P}(0,0,20,1)$
$22: P_{22561} = \mathbf{P}(0,0,\eta^{22},1) = \mathbf{P}(0,0,21,1)$
$23: P_{23585} = \mathbf{P}(0,0,\eta^{28},1) = \mathbf{P}(0,0,22,1)$
$24: P_{24609} = \mathbf{P}(0,0,\eta^{26},1) = \mathbf{P}(0,0,23,1)$
$25: P_{25633} = \mathbf{P}(0,0,\eta^{21},1) = \mathbf{P}(0,0,24,1)$
$26: P_{26657} = \mathbf{P}(0,0,\eta^{25},1) = \mathbf{P}(0,0,25,1)$
$27: P_{27681} = \mathbf{P}(0,0,\eta^{9},1) = \mathbf{P}(0,0,26,1)$
$28: P_{28705} = \mathbf{P}(0,0,\eta^{16},1) = \mathbf{P}(0,0,27,1)$
$29: P_{29729} = \mathbf{P}(0,0,\eta^{13},1) = \mathbf{P}(0,0,28,1)$
$30: P_{30753} = \mathbf{P}(0,0,\eta^{14},1) = \mathbf{P}(0,0,29,1)$
$31: P_{31777} = \mathbf{P}(0,0,\eta^{24},1) = \mathbf{P}(0,0,30,1)$
$32: P_{32801} = \mathbf{P}(0,0,\eta^{15},1) = \mathbf{P}(0,0,31,1)$

The 35 Lines

The lines and their Pluecker coordinates are:

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

$$\ell_1 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \mathbf{Pl}(0,0,1,0,0,0)_2$$

$$\ell_2 = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{2081} = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{2081} = \mathbf{Pl}(0,0,1,0,0,1)_{34912}$$

$$\ell_3 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082400} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1082400} = \mathbf{Pl}(0,0,0,1,0,0)_{65}$$

$$\ell_4 = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \mathbf{Pl}(0,1,0,0,0,0)_1$$

$$\ell_5 = \begin{bmatrix} 1 & \eta^{30} & 0 & 0 \\ 0 & 0 & 1 & \eta^{16} \end{bmatrix}_{20077} = \begin{bmatrix} 1 & 18 & 0 & 0 \\ 0 & 0 & 1 & 27 \end{bmatrix}_{20077} = \mathbf{Pl}(0,0,31,27,19,1)_{661700}$$

$$\ell_6 = \begin{bmatrix} 1 & \eta^{13} & 0 & 0 \\ 0 & 0 & 1 & \eta^{27} \end{bmatrix}_{30631} = \begin{bmatrix} 1 & 28 & 0 & 0 \\ 0 & 0 & 1 & 11 \end{bmatrix}_{30631} = \mathbf{Pl}(0,0,16,11,29,1)_{988115}$$

$$\ell_7 = \begin{bmatrix} 1 & \eta^{29} & 0 & 0 \\ 0 & 0 & 1 & \eta \end{bmatrix}_{10539} = \begin{bmatrix} 1 & 9 & 0 & 0 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{10539} = \mathbf{Pl}(0,0,18,2,8,1)_{300785}$$

$$\ell_8 = \begin{bmatrix} 1 & \eta^{26} & 0 & 0 \\ 0 & 0 & 1 & \eta^{23} \end{bmatrix}_{25350} = \begin{bmatrix} 1 & 23 & 0 & 0 \\ 0 & 0 & 1 & 15 \end{bmatrix}_{25350} = \mathbf{Pl}(0,0,13,15,22,1)_{758774}$$

$$\ell_9 = \begin{bmatrix} 1 & \eta^{12} & 0 & 0 \\ 0 & 0 & 1 & \eta^{4} \end{bmatrix}_{15838} = \begin{bmatrix} 1 & 14 & 0 & 0 \\ 0 & 0 & 1 & 16 \end{bmatrix}_{15838} = \mathbf{Pl}(0,0,11,16,15,1)_{529496}$$

$$\ell_{10} = \begin{bmatrix} 1 & \eta^{20} & 0 & 0 \\ 0 & 0 & 1 & \eta^{28} \end{bmatrix}_{13730} = \begin{bmatrix} 1 & 12 & 0 & 0 \\ 0 & 0 & 1 & 22 \end{bmatrix}_{13730} = \mathbf{Pl}(0,0,8,22,13,1)_{463835}$$

$$\ell_{11} = \begin{bmatrix} 1 & \eta^{28} & 0 & 0 \\ 0 & 0 & 1 & \eta^{23} \end{bmatrix}_{24293} = \begin{bmatrix} 1 & 22 & 0 & 0 \\ 0 & 0 & 1 & 15 \end{bmatrix}_{24293} = \mathbf{Pl}(0,0,13,15,23,1)_{791510}$$

$$\ell_{12} = \begin{bmatrix} 1 & \eta^{2} & 0 & 0 \\ 0 & 0 & 1 & \eta^{7} \end{bmatrix}_{5272} = \begin{bmatrix} 1 & 4 & 0 & 0 \\ 0 & 0 & 1 & 20 \end{bmatrix}_{5272} = \mathbf{Pl}(0,0,30,20,5,1)_{203333}$$

$$\ell_{13} = \begin{bmatrix} 1 & \eta^{25} & 0 & 0 \\ 0 & 0 & 1 & \eta^{15} \end{bmatrix}_{27480} = \begin{bmatrix} 1 & 25 & 0 & 0 \\ 0 & 0 & 1 & 31 \end{bmatrix}_{27480} = \mathbf{Pl}(0,0,27,31,24,1)_{825128}$$

$$\ell_{14} = \begin{bmatrix} 1 & \eta^{4} & 0 & 0 \\ 0 & 0 & 1 & \eta^{14} \end{bmatrix}_{17965} = \begin{bmatrix} 1 & 16 & 0 & 0 \\ 0 & 0 & 1 & 29 \end{bmatrix}_{17965} = \mathbf{Pl}(0,0,19,29,17,1)_{595472}$$

$$\ell_{15} = \begin{bmatrix} 1 & \eta^{11} & 0 & 0 \\ 0 & 0 & 1 & \eta^{30} \end{bmatrix}_{8441} = \begin{bmatrix} 1 & 7 & 0 & 0 \\ 0 & 0 & 1 & 18 \end{bmatrix}_{8441} = \mathbf{Pl}(0,0,2,18,6,1)_{234305}$$

$$\ell_{16} = \left[\begin{array}{cccc} 1 & \eta^{23} & 0 & 0 \\ 0 & 0 & 1 & \eta^{4} \end{array}\right]_{16895} = \left[\begin{array}{cccc} 1 & 15 & 0 & 0 \\ 0 & 0 & 1 & 16 \end{array}\right]_{16895} = \mathbf{Pl}(0,0,11,16,14,1)_{496760}$$

$$\ell_{17} = \left[\begin{array}{cccc} 1 & \eta^{19} & 0 & 0 \\ 0 & 0 & 1 & \eta^{30} \end{array}\right]_{7384} = \left[\begin{array}{cccc} 1 & 6 & 0 & 0 \\ 0 & 0 & 1 & 18 \end{array}\right]_{7384} = \mathbf{Pl}(0,0,2,18,7,1)_{267041}$$

$$\ell_{18} = \left[\begin{array}{cccc} 1 & \eta^{8} & 0 & 0 \\ 0 & 0 & 1 & \eta^{28} \end{array}\right]_{14787} = \left[\begin{array}{cccc} 1 & 13 & 0 & 0 \\ 0 & 0 & 1 & 22 \end{array}\right]_{14787} = \mathbf{Pl}(0,0,8,22,12,1)_{431099}$$

$$\ell_{19} = \left[\begin{array}{cccc} 1 & \eta^{27} & 0 & 0 \\ 0 & 0 & 1 & \eta^{2} \end{array}\right]_{12655} = \left[\begin{array}{cccc} 1 & 11 & 0 & 0 \\ 0 & 0 & 1 & 4 \end{array}\right]_{12655} = \mathbf{Pl}(0,0,9,4,10,1)_{365690}$$

$$\ell_{20} = \left[\begin{array}{cccc} 1 & \eta^{21} & 0 & 0 \\ 0 & 0 & 1 & \eta^{15} \end{array}\right]_{26423} = \left[\begin{array}{cccc} 1 & 24 & 0 & 0 \\ 0 & 0 & 1 & 31 \end{array}\right]_{26423} = \mathbf{Pl}(0,0,27,31,25,1)_{857864}$$

$$\ell_{21} = \left[\begin{array}{cccc} 1 & \eta & 0 & 0 \\ 0 & 0 & 1 & \eta^{19} \end{array}\right]_{3144} = \left[\begin{array}{cccc} 1 & 2 & 0 & 0 \\ 0 & 0 & 1 & 6 \end{array}\right]_{3144} = \mathbf{Pl}(0,0,14,6,3,1)_{136853}$$

$$\ell_{22} = \left[\begin{array}{cccc} 1 & \eta^{14} & 0 & 0 \\ 0 & 0 & 1 & \eta^{27} \end{array}\right]_{31688} = \left[\begin{array}{cccc} 1 & 29 & 0 & 0 \\ 0 & 0 & 1 & 11 \end{array}\right]_{31688} = \mathbf{Pl}(0,0,16,11,28,1)_{955379}$$

$$\ell_{23} = \left[\begin{array}{cccc} 1 & \eta^{24} & 0 & 0 \\ 0 & 0 & 1 & \eta^{8} \end{array}\right]_{32747} = \left[\begin{array}{cccc} 1 & 30 & 0 & 0 \\ 0 & 0 & 1 & 13 \end{array}\right]_{32747} = \mathbf{Pl}(0,0,15,13,31,1)_{1053524}$$

$$\ell_{24} = \left[\begin{array}{cccc} 1 & \eta^{9} & 0 & 0 \\ 0 & 0 & 1 & \eta^{25} \end{array}\right]_{28531} = \left[\begin{array}{cccc} 1 & 26 & 0 & 0 \\ 0 & 0 & 1 & 25 \end{array}\right]_{28531} = \mathbf{Pl}(0,0,10,25,27,1)_{922265}$$

$$\ell_{25} = \left[\begin{array}{cccc} 1 & \eta^{3} & 0 & 0 \\ 0 & 0 & 1 & \eta \end{array}\right]_{9482} = \left[\begin{array}{cccc} 1 & 8 & 0 & 0 \\ 0 & 0 & 1 & 2 \end{array}\right]_{9482} = \mathbf{Pl}(0,0,18,2,9,1)_{333521}$$

$$\ell_{26} = \left[\begin{array}{cccc} 1 & \eta^{5} & 0 & 0 \\ 0 & 0 & 1 & \eta^{7} \end{array}\right]_{6329} = \left[\begin{array}{cccc} 1 & 5 & 0 & 0 \\ 0 & 0 & 1 & 20 \end{array}\right]_{6329} = \mathbf{Pl}(0,0,30,20,4,1)_{170597}$$

$$\ell_{27} = \left[\begin{array}{cccc} 1 & \eta^{10} & 0 & 0 \\ 0 & 0 & 1 & \eta^{14} \end{array}\right]_{19022} = \left[\begin{array}{cccc} 1 & 17 & 0 & 0 \\ 0 & 0 & 1 & 29 \end{array}\right]_{19022} = \mathbf{Pl}(0,0,19,29,16,1)_{562736}$$

$$\ell_{28} = \left[\begin{array}{cccc} 1 & \eta^{6} & 0 & 0 \\ 0 & 0 & 1 & \eta^{2} \end{array}\right]_{11598} = \left[\begin{array}{cccc} 1 & 10 & 0 & 0 \\ 0 & 0 & 1 & 4 \end{array}\right]_{11598} = \mathbf{Pl}(0,0,9,4,11,1)_{398426}$$

$$\ell_{29} = \left[\begin{array}{cccc} 1 & \eta^{22} & 0 & 0 \\ 0 & 0 & 1 & \eta^{29} \end{array}\right]_{23230} = \left[\begin{array}{cccc} 1 & 21 & 0 & 0 \\ 0 & 0 & 1 & 9 \end{array}\right]_{23230} = \mathbf{Pl}(0,0,4,9,20,1)_{692735}$$

$$\ell_{30} = \left[\begin{array}{cccc} 1 & \eta^{15} & 0 & 0 \\ 0 & 0 & 1 & \eta^{8} \end{array}\right]_{33804} = \left[\begin{array}{cccc} 1 & 31 & 0 & 0 \\ 0 & 0 & 1 & 13 \end{array}\right]_{33804} = \mathbf{Pl}(0,0,15,13,30,1)_{1020788}$$

$$\ell_{31} = \left[\begin{array}{cccc} 1 & \eta^{18} & 0 & 0 \\ 0 & 0 & 1 & \eta^{19} \end{array}\right]_{4201} = \left[\begin{array}{cccc} 1 & 3 & 0 & 0 \\ 0 & 0 & 1 & 6 \end{array}\right]_{4201} = \mathbf{Pl}(0,0,14,6,2,1)_{104117}$$

$$\ell_{32} = \left[\begin{array}{cccc} 1 & \eta^{17} & 0 & 0 \\ 0 & 0 & 1 & \eta^{16} \end{array}\right]_{21134} = \left[\begin{array}{cccc} 1 & 19 & 0 & 0 \\ 0 & 0 & 1 & 27 \end{array}\right]_{21134} = \mathbf{Pl}(0,0,31,27,18,1)_{628964}$$

$$\ell_{33} = \left[\begin{array}{cccc} 1 & \eta^{7} & 0 & 0 \\ 0 & 0 & 1 & \eta^{29} \end{array}\right]_{22173} = \left[\begin{array}{cccc} 1 & 20 & 0 & 0 \\ 0 & 0 & 1 & 9 \end{array}\right]_{22173} = \mathbf{Pl}(0,0,4,9,21,1)_{725471}$$

$$\ell_{34} = \left[\begin{array}{cccc} 1 & \eta^{16} & 0 & 0 \\ 0 & 0 & 1 & \eta^{25} \end{array}\right]_{29588} = \left[\begin{array}{cccc} 1 & 27 & 0 & 0 \\ 0 & 0 & 1 & 25 \end{array}\right]_{29588} = \mathbf{Pl}(0,0,10,25,26,1)_{889529}$$

Rank of lines: (0, 1024, 2081, 1082400, 1083424, 20077, 30631, 10539, 25350, 15838, 13730, 24293, 5272, 27480, 17965, 8441, 16895, 7384, 14787, 12655, 26423, 3144, 31688, 32747, 28531, 9482, 6329, 19022, 11598, 23230, 33804, 4201, 21134, 22173, 29588)

Rank of points on Klein quadric: (0, 2, 34912, 65, 1, 661700, 988115, 300785, 758774, 529496, 463835, 791510, 203333, 825128, 595472, 234305, 496760, 267041, 431099, 365690, 857864, 136853, 955379, 1053524, 922265, 333521, 170597, 562736, 398426, 692735, 1020788, 104117, 628964, 725471, 889529)

Eckardt Points

The surface has 16 Eckardt points:
$0 : P_2 = \mathbf{P}(0,0,1,0) = \mathbf{P}(0,0,1,0)$,
$1 : P_{3105} = \mathbf{P}(0,0,\eta,1) = \mathbf{P}(0,0,2,1)$,
$2 : P_{5153} = \mathbf{P}(0,0,\eta^2,1) = \mathbf{P}(0,0,4,1)$,
$3 : P_{9249} = \mathbf{P}(0,0,\eta^3,1) = \mathbf{P}(0,0,8,1)$,
$4 : P_{10273} = \mathbf{P}(0,0,\eta^{29},1) = \mathbf{P}(0,0,9,1)$,
$5 : P_{11297} = \mathbf{P}(0,0,\eta^6,1) = \mathbf{P}(0,0,10,1)$,
$6 : P_{12321} = \mathbf{P}(0,0,\eta^{27},1) = \mathbf{P}(0,0,11,1)$,
$7 : P_{14369} = \mathbf{P}(0,0,\eta^8,1) = \mathbf{P}(0,0,13,1)$,
$8 : P_{15393} = \mathbf{P}(0,0,\eta^{12},1) = \mathbf{P}(0,0,14,1)$,
$9 : P_{16417} = \mathbf{P}(0,0,\eta^{23},1) = \mathbf{P}(0,0,15,1)$,
$10 : P_{17441} = \mathbf{P}(0,0,\eta^4,1) = \mathbf{P}(0,0,16,1)$,
$11 : P_{19489} = \mathbf{P}(0,0,\eta^{30},1) = \mathbf{P}(0,0,18,1)$,
$12 : P_{20513} = \mathbf{P}(0,0,\eta^{17},1) = \mathbf{P}(0,0,19,1)$,
$13 : P_{28705} = \mathbf{P}(0,0,\eta^{16},1) = \mathbf{P}(0,0,27,1)$,
$14 : P_{31777} = \mathbf{P}(0,0,\eta^{24},1) = \mathbf{P}(0,0,30,1)$,
$15 : P_{32801} = \mathbf{P}(0,0,\eta^{15},1) = \mathbf{P}(0,0,31,1)$.

Double Points

The surface has 34 Double points:
The double points on the surface are:

$P_0 = (1,0,0,0) = \ell_0 \cap \ell_1$
$P_5 = (1,1,0,0) = \ell_0 \cap \ell_2$
$P_1 = (0,1,0,0) = \ell_0 \cap \ell_3$
$P_6 = (2,1,0,0) = \ell_0 \cap \ell_5$
$P_7 = (3,1,0,0) = \ell_0 \cap \ell_6$
$P_8 = (4,1,0,0) = \ell_0 \cap \ell_7$
$P_9 = (5,1,0,0) = \ell_0 \cap \ell_8$
$P_{10} = (6,1,0,0) = \ell_0 \cap \ell_9$
$P_{11} = (7,1,0,0) = \ell_0 \cap \ell_{10}$
$P_{12} = (8,1,0,0) = \ell_0 \cap \ell_{11}$
$P_{13} = (9,1,0,0) = \ell_0 \cap \ell_{12}$
$P_{14} = (10,1,0,0) = \ell_0 \cap \ell_{13}$
$P_{15} = (11,1,0,0) = \ell_0 \cap \ell_{14}$
$P_{16} = (12,1,0,0) = \ell_0 \cap \ell_{15}$
$P_{17} = (13,1,0,0) = \ell_0 \cap \ell_{16}$
$P_{18} = (14,1,0,0) = \ell_0 \cap \ell_{17}$
$P_{19} = (15,1,0,0) = \ell_0 \cap \ell_{18}$
$P_{20} = (16,1,0,0) = \ell_0 \cap \ell_{19}$
$P_{21} = (17,1,0,0) = \ell_0 \cap \ell_{20}$
$P_{22} = (18,1,0,0) = \ell_0 \cap \ell_{21}$
$P_{23} = (19,1,0,0) = \ell_0 \cap \ell_{22}$
$P_{24} = (20,1,0,0) = \ell_0 \cap \ell_{23}$
$P_{25} = (21,1,0,0) = \ell_0 \cap \ell_{24}$
$P_{26} = (22,1,0,0) = \ell_0 \cap \ell_{25}$
$P_{27} = (23,1,0,0) = \ell_0 \cap \ell_{26}$
$P_{28} = (24,1,0,0) = \ell_0 \cap \ell_{27}$
$P_{29} = (25,1,0,0) = \ell_0 \cap \ell_{28}$
$P_{30} = (26,1,0,0) = \ell_0 \cap \ell_{29}$
$P_{31} = (27,1,0,0) = \ell_0 \cap \ell_{30}$
$P_{32} = (28,1,0,0) = \ell_0 \cap \ell_{31}$
$P_{33} = (29,1,0,0) = \ell_0 \cap \ell_{32}$
$P_{34} = (30,1,0,0) = \ell_0 \cap \ell_{33}$
$P_{35} = (31,1,0,0) = \ell_0 \cap \ell_{34}$
$P_3 = (0,0,0,1) = \ell_3 \cap \ell_4$

Single Points

The surface has 1039 single points:
Too many to print.

Points on surface but on no line

The surface has 0 points not on any line:
The points on the surface but not on lines are:

Line Intersection Graph

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
0	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
13	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
20	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
22	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
24	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
25	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
31	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
34	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}
in point	P_0	P_5	P_1	P_6	P_7	P_8	P_9	P_{10}	P_{11}	P_{12}	P_{13}	P_{14}	P_{15}	P_{16}	P_{17}	P_{18}	P_{19}	P_{20}	P_{21}	P_{22}	P_{23}

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_4
in point	P_0	P_2	P_2

Line 2 intersects

Line	ℓ_0	ℓ_1	ℓ_4
in point	P_5	P_2	P_2

Line 3 intersects

Line	ℓ_0	ℓ_4
in point	P_1	P_3

Line 4 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{16}
in point	P_2	P_2	P_3	P_{32801}	P_{17441}	P_{19489}	P_{14369}	P_{12321}	P_{9249}	P_{14369}	P_{31777}	P_{28705}	P_{20513}	P_{3105}	P_{12321}

Line 5 intersects

Line	ℓ_0	ℓ_4	ℓ_{32}
in point	P_6	P_{32801}	P_{32801}

Line 6 intersects

Line	ℓ_0	ℓ_4	ℓ_{22}
in point	P_7	P_{17441}	P_{17441}

Line 7 intersects

Line	ℓ_0	ℓ_4	ℓ_{25}
in point	P_8	P_{19489}	P_{19489}

Line 8 intersects

Line	ℓ_0	ℓ_4	ℓ_{11}
in point	P_9	P_{14369}	P_{14369}

Line 9 intersects

Line	ℓ_0	ℓ_4	ℓ_{16}
in point	P_{10}	P_{12321}	P_{12321}

Line 10 intersects

Line	ℓ_0	ℓ_4	ℓ_{18}
in point	P_{11}	P_{9249}	P_{9249}

Line 11 intersects

Line	ℓ_0	ℓ_4	ℓ_8
in point	P_{12}	P_{14369}	P_{14369}

Line 12 intersects

Line	ℓ_0	ℓ_4	ℓ_{26}
in point	P_{13}	P_{31777}	P_{31777}

Line 13 intersects

Line	ℓ_0	ℓ_4	ℓ_{20}
in point	P_{14}	P_{28705}	P_{28705}

Line 14 intersects

Line	ℓ_0	ℓ_4	ℓ_{27}
in point	P_{15}	P_{20513}	P_{20513}

Line 15 intersects

Line	ℓ_0	ℓ_4	ℓ_{17}
in point	P_{16}	P_{3105}	P_{3105}

Line 16 intersects

Line	ℓ_0	ℓ_4	ℓ_9
in point	P_{17}	P_{12321}	P_{12321}

Line 17 intersects

Line	ℓ_0	ℓ_4	ℓ_{15}
in point	P_{18}	P_{3105}	P_{3105}

Line 18 intersects

Line	ℓ_0	ℓ_4	ℓ_{10}
in point	P_{19}	P_{9249}	P_{9249}

Line 19 intersects

Line	ℓ_0	ℓ_4	ℓ_{28}
in point	P_{20}	P_{10273}	P_{10273}

Line 20 intersects

Line	ℓ_0	ℓ_4	ℓ_{13}
in point	P_{21}	P_{28705}	P_{28705}

Line 21 intersects

Line	ℓ_0	ℓ_4	ℓ_{31}
in point	P_{22}	P_{15393}	P_{15393}

Line 22 intersects

Line	ℓ_0	ℓ_4	ℓ_6
in point	P_{23}	P_{17441}	P_{17441}

Line 23 intersects

Line	ℓ_0	ℓ_4	ℓ_{30}
in point	P_{24}	P_{16417}	P_{16417}

Line 24 intersects

Line	ℓ_0	ℓ_4	ℓ_{34}
in point	P_{25}	P_{11297}	P_{11297}

Line 25 intersects

Line	ℓ_0	ℓ_4	ℓ_7
in point	P_{26}	P_{19489}	P_{19489}

Line 26 intersects

Line	ℓ_0	ℓ_4	ℓ_{12}
in point	P_{27}	P_{31777}	P_{31777}

Line 27 intersects

Line	ℓ_0	ℓ_4	ℓ_{14}
in point	P_{28}	P_{20513}	P_{20513}

Line 28 intersects

Line	ℓ_0	ℓ_4	ℓ_{19}
in point	P_{29}	P_{10273}	P_{10273}

Line 29 intersects

Line	ℓ_0	ℓ_4	ℓ_{33}
in point	P_{30}	P_{5153}	P_{5153}

Line 30 intersects

Line	ℓ_0	ℓ_4	ℓ_{23}
in point	P_{31}	P_{16417}	P_{16417}

Line 31 intersects

Line	ℓ_0	ℓ_4	ℓ_{21}
in point	P_{32}	P_{15393}	P_{15393}

Line 32 intersects

Line	ℓ_0	ℓ_4	ℓ_5
in point	P_{33}	P_{32801}	P_{32801}

Line 33 intersects

Line	ℓ_0	ℓ_4	ℓ_{29}
in point	P_{34}	P_{5153}	P_{5153}

Line 34 intersects

Line	ℓ_0	ℓ_4	ℓ_{24}
in point	P_{35}	P_{11297}	P_{11297}

The surface has 1089 points:
Too many to print.