

Rank-16 over GF(4)

January 15, 2021

The equation

The equation of the surface is :

$$X_0X_1X_2 = 0$$

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

The point rank of the equation over GF(4) is 16

General information

Number of lines	60
Number of points	49
Number of singular points	13
Number of Eckardt points	0
Number of double points	0
Number of single points	0
Number of points off lines	0
Number of Hesse planes	0
Number of axes	0
Type of points on lines	5^{60}
Type of lines on points	$12, 9^{12}, 5^{36}$

Singular Points

The surface has 13 singular points:

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

$$1 : P_1 = \mathbf{P}(0, 1, 0, 0) = \mathbf{P}(0, 1, 0, 0)$$

$$2 : P_2 = \mathbf{P}(0, 0, 1, 0) = \mathbf{P}(0, 0, 1, 0)$$

$$3 : P_3 = \mathbf{P}(0, 0, 0, 1) = \mathbf{P}(0, 0, 0, 1)$$

$$4 : P_{23} = \mathbf{P}(1, 0, 0, 1) = \mathbf{P}(1, 0, 0, 1)$$

$$5 : P_{24} = \mathbf{P}(\omega, 0, 0, 1) = \mathbf{P}(2, 0, 0, 1)$$

$$6 : P_{25} = \mathbf{P}(\omega^2, 0, 0, 1) = \mathbf{P}(3, 0, 0, 1)$$

$$7 : P_{26} = \mathbf{P}(0, 1, 0, 1) = \mathbf{P}(0, 1, 0, 1)$$

$$8 : P_{30} = \mathbf{P}(0, \omega, 0, 1) = \mathbf{P}(0, 2, 0, 1)$$

$$9 : P_{34} = \mathbf{P}(0, \omega^2, 0, 1) = \mathbf{P}(0, 3, 0, 1)$$

$$10 : P_{38} = \mathbf{P}(0, 0, 1, 1) = \mathbf{P}(0, 0, 1, 1)$$

$$11 : P_{53} = \mathbf{P}(0, 0, \omega, 1) = \mathbf{P}(0, 0, 2, 1)$$

$$12 : P_{69} = \mathbf{P}(0, 0, \omega^2, 1) = \mathbf{P}(0, 0, 3, 1)$$

The 60 Lines

The lines and their Pluecker coordinates are:

$$\begin{aligned}
\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}_{16} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{16} = \mathbf{Pl}(0, 0, 1, 0, 0, 0)_2 \\
\ell_2 &= \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{336} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{336} = \mathbf{Pl}(0, 0, 0, 0, 0, 1)_{101} \\
\ell_3 &= \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{20} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{20} = \mathbf{Pl}(0, 0, 0, 0, 1, 0)_{25} \\
\ell_4 &= \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_4 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_4 = \mathbf{Pl}(1, 0, 0, 0, 1, 0)_{26} \\
\ell_5 &= \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \omega^2 \end{bmatrix}_{12} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 3 \end{bmatrix}_{12} = \mathbf{Pl}(2, 0, 0, 0, 1, 0)_{27} \\
\ell_6 &= \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \omega \end{bmatrix}_8 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 2 \end{bmatrix}_8 = \mathbf{Pl}(3, 0, 0, 0, 1, 0)_{28} \\
\ell_7 &= \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{17} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{17} = \mathbf{Pl}(0, 0, 1, 0, 1, 0)_{32} \\
\ell_8 &= \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \omega^2 \end{bmatrix}_{19} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 3 \end{bmatrix}_{19} = \mathbf{Pl}(0, 0, 2, 0, 1, 0)_{39} \\
\ell_9 &= \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \omega \end{bmatrix}_{18} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{18} = \mathbf{Pl}(0, 0, 3, 0, 1, 0)_{46} \\
\ell_{10} &= \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{340} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{340} = \mathbf{Pl}(0, 0, 0, 1, 0, 0)_9 \\
\ell_{11} &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{84} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{84} = \mathbf{Pl}(1, 0, 0, 1, 0, 0)_{10} \\
\ell_{12} &= \begin{bmatrix} 1 & 0 & 0 & \omega^2 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{252} = \begin{bmatrix} 1 & 0 & 0 & 3 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{252} = \mathbf{Pl}(2, 0, 0, 1, 0, 0)_{11} \\
\ell_{13} &= \begin{bmatrix} 1 & 0 & 0 & \omega \\ 0 & 1 & 0 & 0 \end{bmatrix}_{168} = \begin{bmatrix} 1 & 0 & 0 & 2 \\ 0 & 1 & 0 & 0 \end{bmatrix}_{168} = \mathbf{Pl}(3, 0, 0, 1, 0, 0)_{12} \\
\ell_{14} &= \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{337} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{337} = \mathbf{Pl}(0, 0, 0, 1, 0, 1)_{129} \\
\ell_{15} &= \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \omega^2 \end{bmatrix}_{339} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 3 \end{bmatrix}_{339} = \mathbf{Pl}(0, 0, 0, 3, 0, 1)_{143} \\
\ell_{16} &= \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \omega \end{bmatrix}_{338} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{338} = \mathbf{Pl}(0, 0, 0, 2, 0, 1)_{136} \\
\ell_{17} &= \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{356} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{356} = \mathbf{Pl}(0, 1, 0, 0, 0, 0)_1 \\
\ell_{18} &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{100} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{100} = \mathbf{Pl}(0, 1, 1, 0, 0, 0)_6 \\
\ell_{19} &= \begin{bmatrix} 1 & 0 & 0 & \omega^2 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{268} = \begin{bmatrix} 1 & 0 & 0 & 3 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{268} = \mathbf{Pl}(0, 3, 1, 0, 0, 0)_8
\end{aligned}$$

$$\begin{aligned}
\ell_{20} &= \begin{bmatrix} 1 & 0 & 0 & \omega \\ 0 & 0 & 1 & 0 \end{bmatrix}_{184} = \begin{bmatrix} 1 & 0 & 0 & 2 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{184} = \mathbf{Pl}(0, 2, 1, 0, 0, 0)_7 \\
\ell_{21} &= \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{341} = \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{341} = \mathbf{Pl}(0, 1, 0, 0, 0, 1)_{105} \\
\ell_{22} &= \begin{bmatrix} 0 & 1 & 0 & \omega^2 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{351} = \begin{bmatrix} 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{351} = \mathbf{Pl}(0, 3, 0, 0, 0, 1)_{107} \\
\ell_{23} &= \begin{bmatrix} 0 & 1 & 0 & \omega \\ 0 & 0 & 1 & 0 \end{bmatrix}_{346} = \begin{bmatrix} 0 & 1 & 0 & 2 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{346} = \mathbf{Pl}(0, 2, 0, 0, 0, 1)_{106} \\
\ell_{24} &= \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{41} = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{41} = \mathbf{Pl}(0, 0, 0, 1, 1, 0)_{53} \\
\ell_{25} &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{88} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{88} = \mathbf{Pl}(1, 0, 0, 1, 1, 0)_{54} \\
\ell_{26} &= \begin{bmatrix} 1 & 0 & 0 & \omega^2 \\ 0 & 1 & 0 & \omega^2 \end{bmatrix}_{264} = \begin{bmatrix} 1 & 0 & 0 & 3 \\ 0 & 1 & 0 & 3 \end{bmatrix}_{264} = \mathbf{Pl}(2, 0, 0, 1, 1, 0)_{55} \\
\ell_{27} &= \begin{bmatrix} 1 & 0 & 0 & \omega \\ 0 & 1 & 0 & \omega \end{bmatrix}_{176} = \begin{bmatrix} 1 & 0 & 0 & 2 \\ 0 & 1 & 0 & 2 \end{bmatrix}_{176} = \mathbf{Pl}(3, 0, 0, 1, 1, 0)_{56} \\
\ell_{28} &= \begin{bmatrix} 1 & \omega^2 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{83} = \begin{bmatrix} 1 & 3 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{83} = \mathbf{Pl}(0, 0, 0, 3, 1, 0)_{67} \\
\ell_{29} &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & \omega \end{bmatrix}_{92} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 2 \end{bmatrix}_{92} = \mathbf{Pl}(3, 0, 0, 3, 1, 0)_{70} \\
\ell_{30} &= \begin{bmatrix} 1 & 0 & 0 & \omega^2 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{256} = \begin{bmatrix} 1 & 0 & 0 & 3 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{256} = \mathbf{Pl}(1, 0, 0, 3, 1, 0)_{68} \\
\ell_{31} &= \begin{bmatrix} 1 & 0 & 0 & \omega \\ 0 & 1 & 0 & \omega^2 \end{bmatrix}_{180} = \begin{bmatrix} 1 & 0 & 0 & 2 \\ 0 & 1 & 0 & 3 \end{bmatrix}_{180} = \mathbf{Pl}(2, 0, 0, 3, 1, 0)_{69} \\
\ell_{32} &= \begin{bmatrix} 1 & \omega & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{62} = \begin{bmatrix} 1 & 2 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{62} = \mathbf{Pl}(0, 0, 0, 2, 1, 0)_{60} \\
\ell_{33} &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & \omega^2 \end{bmatrix}_{96} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 0 & 3 \end{bmatrix}_{96} = \mathbf{Pl}(2, 0, 0, 2, 1, 0)_{62} \\
\ell_{34} &= \begin{bmatrix} 1 & 0 & 0 & \omega^2 \\ 0 & 1 & 0 & \omega \end{bmatrix}_{260} = \begin{bmatrix} 1 & 0 & 0 & 3 \\ 0 & 1 & 0 & 2 \end{bmatrix}_{260} = \mathbf{Pl}(3, 0, 0, 2, 1, 0)_{63} \\
\ell_{35} &= \begin{bmatrix} 1 & 0 & 0 & \omega \\ 0 & 1 & 0 & 1 \end{bmatrix}_{172} = \begin{bmatrix} 1 & 0 & 0 & 2 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{172} = \mathbf{Pl}(1, 0, 0, 2, 1, 0)_{61} \\
\ell_{36} &= \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{104} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{104} = \mathbf{Pl}(0, 1, 0, 0, 1, 0)_{29} \\
\ell_{37} &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{101} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{101} = \mathbf{Pl}(0, 1, 1, 0, 1, 0)_{36} \\
\ell_{38} &= \begin{bmatrix} 1 & 0 & 0 & \omega^2 \\ 0 & 0 & 1 & \omega^2 \end{bmatrix}_{271} = \begin{bmatrix} 1 & 0 & 0 & 3 \\ 0 & 0 & 1 & 3 \end{bmatrix}_{271} = \mathbf{Pl}(0, 1, 2, 0, 1, 0)_{43} \\
\ell_{39} &= \begin{bmatrix} 1 & 0 & 0 & \omega \\ 0 & 0 & 1 & \omega \end{bmatrix}_{186} = \begin{bmatrix} 1 & 0 & 0 & 2 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{186} = \mathbf{Pl}(0, 1, 3, 0, 1, 0)_{50} \\
\ell_{40} &= \begin{bmatrix} 1 & 0 & \omega^2 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{272} = \begin{bmatrix} 1 & 0 & 3 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{272} = \mathbf{Pl}(0, 3, 0, 0, 1, 0)_{31}
\end{aligned}$$

$$\begin{aligned}
\ell_{41} &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & \omega \end{bmatrix}_{102} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{102} = \mathbf{Pl}(0, 3, 3, 0, 1, 0)_{52} \\
\ell_{42} &= \begin{bmatrix} 1 & 0 & 0 & \omega^2 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{269} = \begin{bmatrix} 1 & 0 & 0 & 3 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{269} = \mathbf{Pl}(0, 3, 1, 0, 1, 0)_{38} \\
\ell_{43} &= \begin{bmatrix} 1 & 0 & 0 & \omega \\ 0 & 0 & 1 & \omega^2 \end{bmatrix}_{187} = \begin{bmatrix} 1 & 0 & 0 & 2 \\ 0 & 0 & 1 & 3 \end{bmatrix}_{187} = \mathbf{Pl}(0, 3, 2, 0, 1, 0)_{45} \\
\ell_{44} &= \begin{bmatrix} 1 & 0 & \omega & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{188} = \begin{bmatrix} 1 & 0 & 2 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{188} = \mathbf{Pl}(0, 2, 0, 0, 1, 0)_{30} \\
\ell_{45} &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & \omega^2 \end{bmatrix}_{103} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 3 \end{bmatrix}_{103} = \mathbf{Pl}(0, 2, 2, 0, 1, 0)_{44} \\
\ell_{46} &= \begin{bmatrix} 1 & 0 & 0 & \omega^2 \\ 0 & 0 & 1 & \omega \end{bmatrix}_{270} = \begin{bmatrix} 1 & 0 & 0 & 3 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{270} = \mathbf{Pl}(0, 2, 3, 0, 1, 0)_{51} \\
\ell_{47} &= \begin{bmatrix} 1 & 0 & 0 & \omega \\ 0 & 0 & 1 & 1 \end{bmatrix}_{185} = \begin{bmatrix} 1 & 0 & 0 & 2 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{185} = \mathbf{Pl}(0, 2, 1, 0, 1, 0)_{37} \\
\ell_{48} &= \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{345} = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{345} = \mathbf{Pl}(0, 1, 0, 1, 0, 0)_{13} \\
\ell_{49} &= \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{342} = \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{342} = \mathbf{Pl}(0, 1, 0, 1, 0, 1)_{133} \\
\ell_{50} &= \begin{bmatrix} 0 & 1 & 0 & \omega^2 \\ 0 & 0 & 1 & \omega^2 \end{bmatrix}_{354} = \begin{bmatrix} 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 3 \end{bmatrix}_{354} = \mathbf{Pl}(0, 3, 0, 3, 0, 1)_{149} \\
\ell_{51} &= \begin{bmatrix} 0 & 1 & 0 & \omega \\ 0 & 0 & 1 & \omega \end{bmatrix}_{348} = \begin{bmatrix} 0 & 1 & 0 & 2 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{348} = \mathbf{Pl}(0, 2, 0, 2, 0, 1)_{141} \\
\ell_{52} &= \begin{bmatrix} 0 & 1 & \omega^2 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{355} = \begin{bmatrix} 0 & 1 & 3 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{355} = \mathbf{Pl}(0, 3, 0, 1, 0, 0)_{15} \\
\ell_{53} &= \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & \omega \end{bmatrix}_{343} = \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{343} = \mathbf{Pl}(0, 1, 0, 2, 0, 1)_{140} \\
\ell_{54} &= \begin{bmatrix} 0 & 1 & 0 & \omega^2 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{352} = \begin{bmatrix} 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{352} = \mathbf{Pl}(0, 3, 0, 1, 0, 1)_{135} \\
\ell_{55} &= \begin{bmatrix} 0 & 1 & 0 & \omega \\ 0 & 0 & 1 & \omega^2 \end{bmatrix}_{349} = \begin{bmatrix} 0 & 1 & 0 & 2 \\ 0 & 0 & 1 & 3 \end{bmatrix}_{349} = \mathbf{Pl}(0, 2, 0, 3, 0, 1)_{148} \\
\ell_{56} &= \begin{bmatrix} 0 & 1 & \omega & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{350} = \begin{bmatrix} 0 & 1 & 2 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{350} = \mathbf{Pl}(0, 2, 0, 1, 0, 0)_{14} \\
\ell_{57} &= \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & \omega^2 \end{bmatrix}_{344} = \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 3 \end{bmatrix}_{344} = \mathbf{Pl}(0, 1, 0, 3, 0, 1)_{147} \\
\ell_{58} &= \begin{bmatrix} 0 & 1 & 0 & \omega^2 \\ 0 & 0 & 1 & \omega \end{bmatrix}_{353} = \begin{bmatrix} 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{353} = \mathbf{Pl}(0, 3, 0, 2, 0, 1)_{142} \\
\ell_{59} &= \begin{bmatrix} 0 & 1 & 0 & \omega \\ 0 & 0 & 1 & 1 \end{bmatrix}_{347} = \begin{bmatrix} 0 & 1 & 0 & 2 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{347} = \mathbf{Pl}(0, 2, 0, 1, 0, 1)_{134}
\end{aligned}$$

Rank of lines: (0, 16, 336, 20, 4, 12, 8, 17, 19, 18, 340, 84, 252, 168, 337, 339, 338, 356, 100, 268, 184, 341, 351, 346, 41, 88, 264, 176, 83, 92, 256, 180, 62, 96, 260, 172, 104, 101, 271, 186, 272, 102, 269, 187, 188, 103, 270, 185, 345, 342, ...344, 353, 347)

Rank of points on Klein quadric: (0, 2, 101, 25, 26, 27, 28, 32, 39, 46, 9, 10, 11, 12, 129, 143, 136, 1, 6, 8, 7, 105, 107, 106, 53, 54, 55, 56, 67, 70, 68, 69, 60, 62, 63, 61, 29, 36, 43, 50, 31, 52, 38, 45, 30, 44, 51, 37, 13, 133, ...147, 142, 134)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 0 Double points:

The double points on the surface are:

Single Points

The surface has 0 single points:

The single points on the surface are:

The single points on the surface are:

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	35	36	37	38	39	40	41	42	43	44	45	46	47				
0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0			
1	0	1	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
2	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	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		
3	1	1	0	0	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	0	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		
4	1	1	0	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
5	1	1	0	1	1	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
6	1	1	0	1	1	1	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0		
7	1	1	0	1	1	1	1	0	1	1	1	1	1	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1		
8	1	1	0	1	1	1	1	0	1	1	1	1	1	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1		
9	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1		
10	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	0			
11	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0	0	1	0	0	0		
12	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0		
13	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	
14	1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	
15	1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	1		
16	1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	
17	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
18	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
19	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	0	0	1	0	0	0	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
20	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
21	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	0	1	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
22	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	0	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	0	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
24	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
25	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0	0	1	0	0	0		
26	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	
27	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
28	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
29	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
30	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	
31	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	
32	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	
33	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
34	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
35	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
36	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	
37	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	
38	0	1	0	0	0	1	1	1	1	1	1																																									

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	
in point	P_0	P_1	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_1	P_1	P_1	P_1	P_1	P_1	P_1	P_5	P_5	P_5	P_5	P_6	P_6	

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}	
in point	P_0	P_2	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_2	P_2	P_2	P_2	P_2	P_2	P_2	P_8	P_8	P_8	P_8	P_9	P_9	

Line 2 intersects

Line	ℓ_0	ℓ_1	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}	ℓ_{23}	ℓ_{48}	ℓ_{49}	ℓ_{50}	ℓ_{51}	ℓ_{52}		
in point	P_1	P_2	P_1	P_1	P_1	P_1	P_1	P_1	P_1	P_2	P_2	P_2	P_2	P_2	P_2	P_2	P_{11}	P_{11}	P_{11}	P_{11}	P_{15}		

Line 3 intersects

Line	ℓ_0	ℓ_1	ℓ_4	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}		
in point	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_3	P_{23}	P_{24}	P_{25}	P_3	P_{23}	P_{24}	P_{25}	P_3	P_{23}	P_{24}	P_{25}	P_3		

Line 4 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{21}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}		
in point	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_{26}	P_{27}	P_{28}	P_{29}	P_{26}	P_{27}	P_{26}	P_{29}	P_{28}	P_{28}	P_{29}	P_{26}	P_{27}		

Line 5 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_4	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{22}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}		
in point	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_{30}	P_{31}	P_{32}	P_{33}	P_{30}	P_{32}	P_{33}	P_{30}	P_{31}	P_{33}	P_{32}	P_{31}	P_{30}		

Line 6 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_4	ℓ_5	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}		
in point	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_{34}	P_{35}	P_{36}	P_{37}	P_{34}	P_{37}	P_{36}	P_{35}	P_{34}	P_{35}	P_{34}	P_{37}	P_{36}		

Line 7 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_8	ℓ_9	ℓ_{14}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}	ℓ_{42}	ℓ_{43}		
in point	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_{38}	P_{38}	P_{39}	P_{40}	P_{41}	P_{39}	P_{38}	P_{41}	P_{40}	P_{40}	P_{41}	P_{38}	P_{39}		

Line 8 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_7	ℓ_9	ℓ_{15}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}	ℓ_{42}	ℓ_{43}		
in point	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_{53}	P_{53}	P_{54}	P_{55}	P_{56}	P_{55}	P_{56}	P_{53}	P_{54}	P_{56}	P_{55}	P_{54}	P_{53}		

Line 9 intersects

Line	ℓ_0	ℓ_1	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}	ℓ_{42}	ℓ_{43}		
in point	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_0	P_{69}	P_{69}	P_{70}	P_{71}	P_{72}	P_{72}	P_{71}	P_{70}	P_{69}	P_{70}	P_{69}	P_{72}	P_{71}		

Line 10 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}		
in point	P_1	P_1	P_3	P_{26}	P_{30}	P_{34}	P_1	P_1	P_1	P_1	P_1	P_1	P_3	P_{26}	P_{30}	P_{34}	P_3	P_{26}	P_{30}	P_{34}	P_3		

Line 11 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{18}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}		
in point	P_1	P_1	P_{23}	P_{27}	P_{31}	P_{35}	P_1	P_1	P_1	P_1	P_1	P_1	P_{23}	P_{27}	P_{23}	P_{35}	P_{31}	P_{35}	P_{23}	P_{31}	P_{27}		

Line 12 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{19}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}
in point	P_1	P_1	P_{24}	P_{28}	P_{32}	P_{36}	P_1	P_1	P_1	P_1	P_1	P_1	P_{24}	P_{32}	P_{36}	P_{24}	P_{28}	P_{28}	P_{32}	P_{24}	P_{32}

Line 13 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{20}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}
in point	P_1	P_1	P_{25}	P_{29}	P_{33}	P_{37}	P_1	P_1	P_1	P_1	P_1	P_1	P_{25}	P_{37}	P_{33}	P_{29}	P_{25}	P_{33}	P_{29}	P_{37}	P_{33}

Line 14 intersects

Line	ℓ_0	ℓ_2	ℓ_7	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{37}	ℓ_{42}	ℓ_{47}	ℓ_{48}	ℓ_{49}	ℓ_{50}	ℓ_{51}	ℓ_{52}
in point	P_1	P_1	P_{38}	P_1	P_1	P_1	P_1	P_1	P_1	P_{38}	P_{42}	P_{45}	P_{49}	P_{38}	P_{38}	P_{38}	P_{42}	P_{38}	P_{49}	P_{45}	P_{38}

Line 15 intersects

Line	ℓ_0	ℓ_2	ℓ_8	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{38}	ℓ_{43}	ℓ_{45}	ℓ_{48}	ℓ_{49}	ℓ_{50}	ℓ_{51}	ℓ_{52}
in point	P_1	P_1	P_{53}	P_1	P_1	P_1	P_1	P_1	P_1	P_{53}	P_{57}	P_{61}	P_{65}	P_{53}	P_{53}	P_{53}	P_{61}	P_{65}	P_{53}	P_{57}	P_{61}

Line 16 intersects

Line	ℓ_0	ℓ_2	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{39}	ℓ_{41}	ℓ_{46}	ℓ_{48}	ℓ_{49}	ℓ_{50}	ℓ_{51}	ℓ_{52}
in point	P_1	P_1	P_{69}	P_1	P_1	P_1	P_1	P_1	P_1	P_{69}	P_{73}	P_{77}	P_{81}	P_{69}	P_{69}	P_{69}	P_{81}	P_{77}	P_{73}	P_{69}	P_{73}

Line 17 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{28}	ℓ_{32}	ℓ_{36}	ℓ_{37}
in point	P_2	P_2	P_3	P_{38}	P_{53}	P_{69}	P_3	P_{38}	P_{53}	P_{69}	P_2	P_2	P_2	P_2	P_2	P_2	P_2	P_3	P_3	P_3	P_{38}

Line 18 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{11}	ℓ_{17}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{25}	ℓ_{29}	ℓ_{33}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}
in point	P_2	P_2	P_{23}	P_{39}	P_{54}	P_{70}	P_{23}	P_2	P_2	P_2	P_2	P_2	P_2	P_{23}	P_{23}	P_{23}	P_{39}	P_{23}	P_{70}	P_{54}	P_{70}

Line 19 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{12}	ℓ_{17}	ℓ_{18}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{26}	ℓ_{30}	ℓ_{34}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}
in point	P_2	P_2	P_{24}	P_{40}	P_{55}	P_{71}	P_{24}	P_2	P_2	P_2	P_2	P_2	P_2	P_{24}	P_{24}	P_{24}	P_{55}	P_{71}	P_{24}	P_{40}	P_{71}

Line 20 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{27}	ℓ_{31}	ℓ_{35}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}
in point	P_2	P_2	P_{25}	P_{41}	P_{56}	P_{72}	P_{25}	P_2	P_2	P_2	P_2	P_2	P_2	P_{25}	P_{25}	P_{25}	P_{72}	P_{56}	P_{41}	P_{25}	P_{72}

Line 21 intersects

Line	ℓ_1	ℓ_2	ℓ_4	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{22}	ℓ_{23}	ℓ_{25}	ℓ_{30}	ℓ_{35}	ℓ_{48}	ℓ_{49}	ℓ_{50}	ℓ_{51}	ℓ_{52}
in point	P_2	P_2	P_{26}	P_{26}	P_{42}	P_{57}	P_{73}	P_2	P_2	P_2	P_2	P_2	P_2	P_{26}	P_{26}	P_{26}	P_{42}	P_{26}	P_{73}	P_{57}	P_{73}

Line 22 intersects

Line	ℓ_1	ℓ_2	ℓ_5	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{23}	ℓ_{26}	ℓ_{31}	ℓ_{33}	ℓ_{48}	ℓ_{49}	ℓ_{50}	ℓ_{51}	ℓ_{52}
in point	P_2	P_2	P_{30}	P_{30}	P_{45}	P_{61}	P_{77}	P_2	P_2	P_2	P_2	P_2	P_2	P_{30}	P_{30}	P_{30}	P_{61}	P_{77}	P_{30}	P_{45}	P_{77}

Line 23 intersects

Line	ℓ_1	ℓ_2	ℓ_6	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{27}	ℓ_{29}	ℓ_{34}	ℓ_{48}	ℓ_{49}	ℓ_{50}	ℓ_{51}	ℓ_{52}
in point	P_2	P_2	P_{34}	P_{34}	P_{49}	P_{65}	P_{81}	P_2	P_2	P_2	P_2	P_2	P_2	P_{34}	P_{34}	P_{34}	P_{81}	P_{65}	P_{49}	P_{34}	P_{81}

Line 24 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}
in point	P_5	P_3	P_{27}	P_{32}	P_{37}	P_3	P_{27}	P_{32}	P_{37}	P_3	P_5	P_5	P_5	P_3	P_{32}	P_{37}	P_{27}	P_3	P_{37}	P_{27}	P_{32}

Line 25 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{18}	ℓ_{21}	ℓ_{24}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}
in point	P_5	P_{23}	P_{26}	P_{33}	P_{36}	P_{26}	P_{23}	P_{36}	P_{33}	P_{23}	P_{26}	P_5	P_5	P_5	P_{33}	P_{23}	P_{26}	P_{36}	P_{36}	P_{23}

Line 26 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{19}	ℓ_{22}	ℓ_{24}	ℓ_{25}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}
in point	P_5	P_{24}	P_{29}	P_{30}	P_{35}	P_{30}	P_{35}	P_{24}	P_{29}	P_{24}	P_{30}	P_5	P_5	P_5	P_{35}	P_{29}	P_{24}	P_{30}	P_{29}	P_{30}

Line 27 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{20}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}
in point	P_5	P_{25}	P_{28}	P_{31}	P_{34}	P_{34}	P_{31}	P_{28}	P_{25}	P_{25}	P_{34}	P_5	P_5	P_5	P_{28}	P_{34}	P_{31}	P_{25}	P_{31}	P_{28}

Line 28 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_3
in point	P_6	P_3	P_{28}	P_{33}	P_{35}	P_3	P_{35}	P_{28}	P_{33}	P_3	P_3	P_{33}	P_{35}	P_{28}	P_6	P_6	P_6	P_3	P_{28}	P_{33}	P_3

Line 29 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{18}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}
in point	P_6	P_{23}	P_{29}	P_{32}	P_{34}	P_{34}	P_{23}	P_{32}	P_{29}	P_{23}	P_{34}	P_{32}	P_{23}	P_{29}	P_{34}	P_6	P_6	P_6	P_{29}	P_{23}

Line 30 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{19}	ℓ_{21}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{31}	ℓ_{32}	ℓ_{33}
in point	P_6	P_{24}	P_{26}	P_{31}	P_{37}	P_{26}	P_{31}	P_{24}	P_{37}	P_{24}	P_{26}	P_{37}	P_{26}	P_{24}	P_{31}	P_6	P_6	P_6	P_{31}	P_{37}

Line 31 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{20}	ℓ_{22}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{32}	ℓ_{33}
in point	P_6	P_{25}	P_{27}	P_{30}	P_{36}	P_{30}	P_{27}	P_{36}	P_{25}	P_{25}	P_{30}	P_{27}	P_{36}	P_{30}	P_{25}	P_6	P_6	P_6	P_{36}	P_{30}

Line 32 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{33}	ℓ_{34}	ℓ_3
in point	P_7	P_3	P_{29}	P_{31}	P_{36}	P_3	P_{31}	P_{36}	P_{29}	P_3	P_3	P_{36}	P_{29}	P_{31}	P_3	P_{29}	P_{31}	P_{36}	P_7	P_7	P_7

Line 33 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{18}	ℓ_{22}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}
in point	P_7	P_{23}	P_{28}	P_{30}	P_{37}	P_{30}	P_{23}	P_{28}	P_{37}	P_{23}	P_{30}	P_{37}	P_{23}	P_{30}	P_{28}	P_{28}	P_{23}	P_{37}	P_{30}	P_7

Line 34 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{19}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}
in point	P_7	P_{24}	P_{27}	P_{33}	P_{34}	P_{34}	P_{27}	P_{24}	P_{33}	P_{24}	P_{34}	P_{27}	P_{33}	P_{24}	P_{34}	P_{33}	P_{34}	P_{24}	P_{27}	P_7

Line 35 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{20}	ℓ_{21}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}
in point	P_7	P_{25}	P_{26}	P_{32}	P_{35}	P_{26}	P_{35}	P_{32}	P_{25}	P_{25}	P_{26}	P_{32}	P_{26}	P_{35}	P_{25}	P_{35}	P_{32}	P_{26}	P_{25}	P_7

Line 36 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{24}	ℓ_{28}	ℓ_{32}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}	ℓ_{42}	ℓ_{43}	ℓ_{44}
in point	P_8	P_3	P_{39}	P_{55}	P_{72}	P_3	P_3	P_{39}	P_{55}	P_{72}	P_3	P_3	P_3	P_8	P_8	P_8	P_3	P_{55}	P_{72}	P_{39}	P_3

Line 37 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{11}	ℓ_{14}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{25}	ℓ_{29}	ℓ_{33}	ℓ_{36}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}	ℓ_{42}
in point	P_8	P_{23}	P_{38}	P_{56}	P_{71}	P_{23}	P_{38}	P_{38}	P_{23}	P_{71}	P_{56}	P_{23}	P_{23}	P_{23}	P_8	P_8	P_8	P_{56}	P_{23}	P_{38}

Line 38 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{12}	ℓ_{15}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{26}	ℓ_{30}	ℓ_{34}	ℓ_{36}	ℓ_{37}	ℓ_{39}	ℓ_{40}	ℓ_{41}	ℓ_{42}
in point	P_8	P_{24}	P_{41}	P_{53}	P_{70}	P_{24}	P_{53}	P_{53}	P_{70}	P_{24}	P_{41}	P_{24}	P_{24}	P_{24}	P_8	P_8	P_8	P_{70}	P_{41}	P_{24}

Line 39 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{13}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{27}	ℓ_{31}	ℓ_{35}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{40}	ℓ_{41}	ℓ_{42}
in point	P_8	P_{25}	P_{40}	P_{54}	P_{69}	P_{25}	P_{69}	P_{69}	P_{54}	P_{40}	P_{25}	P_{25}	P_{25}	P_{25}	P_8	P_8	P_8	P_{40}	P_{69}	P_{54}

Line 40 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{24}	ℓ_{28}	ℓ_{32}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{41}	ℓ_{42}	ℓ_{43}	ℓ_{44}
in point	P_9	P_3	P_{40}	P_{56}	P_{70}	P_3	P_3	P_{70}	P_{40}	P_{56}	P_3	P_3	P_3	P_3	P_{56}	P_{70}	P_{40}	P_9	P_9	P_9	P_3

Line 41 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{11}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{25}	ℓ_{29}	ℓ_{33}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{42}
in point	P_9	P_{23}	P_{41}	P_{55}	P_{69}	P_{23}	P_{69}	P_{69}	P_{23}	P_{55}	P_{41}	P_{23}	P_{23}	P_{23}	P_{55}	P_{23}	P_{41}	P_{69}	P_9	P_9

Line 42 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{12}	ℓ_{14}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{26}	ℓ_{30}	ℓ_{34}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}
in point	P_9	P_{24}	P_{38}	P_{54}	P_{72}	P_{24}	P_{38}	P_{38}	P_{54}	P_{24}	P_{72}	P_{24}	P_{24}	P_{24}	P_{72}	P_{38}	P_{24}	P_{54}	P_9	P_9

Line 43 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{13}	ℓ_{15}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{27}	ℓ_{31}	ℓ_{35}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}
in point	P_9	P_{25}	P_{39}	P_{53}	P_{71}	P_{25}	P_{53}	P_{53}	P_{39}	P_{71}	P_{25}	P_{25}	P_{25}	P_{25}	P_{39}	P_{71}	P_{53}	P_{25}	P_9	P_9

Line 44 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{24}	ℓ_{28}	ℓ_{32}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}	ℓ_{42}	ℓ_{43}	ℓ_{44}
in point	P_{10}	P_3	P_{41}	P_{54}	P_{71}	P_3	P_3	P_{54}	P_{71}	P_{41}	P_3	P_3	P_3	P_3	P_{71}	P_{41}	P_{54}	P_3	P_{41}	P_{54}	P_{71}	P_{41}

Line 45 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{11}	ℓ_{15}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{25}	ℓ_{29}	ℓ_{33}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}	ℓ_{42}	ℓ_{43}	ℓ_{44}
in point	P_{10}	P_{23}	P_{40}	P_{53}	P_{72}	P_{23}	P_{53}	P_{53}	P_{23}	P_{40}	P_{72}	P_{23}	P_{23}	P_{23}	P_{72}	P_{23}	P_{53}	P_{40}	P_{40}	P_{23}	P_{53}	P_{72}	P_{23}

Line 46 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{12}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{26}	ℓ_{30}	ℓ_{34}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}	ℓ_{42}	ℓ_{43}	ℓ_{44}
in point	P_{10}	P_{24}	P_{39}	P_{56}	P_{69}	P_{24}	P_{69}	P_{69}	P_{39}	P_{24}	P_{56}	P_{24}	P_{24}	P_{24}	P_{39}	P_{56}	P_{24}	P_{69}	P_{56}	P_{69}	P_{24}	P_{56}	P_{69}

Line 47 intersects

Line	ℓ_1	ℓ_3	ℓ_7	ℓ_8	ℓ_9	ℓ_{13}	ℓ_{14}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{27}	ℓ_{31}	ℓ_{35}	ℓ_{36}	ℓ_{37}	ℓ_{38}	ℓ_{39}	ℓ_{40}	ℓ_{41}	ℓ_{42}	ℓ_{43}	ℓ_{44}
in point	P_{10}	P_{25}	P_{38}	P_{55}	P_{70}	P_{25}	P_{38}	P_{38}	P_{70}	P_{55}	P_{25}	P_{25}	P_{25}	P_{25}	P_{55}	P_{38}	P_{70}	P_{25}	P_{70}	P_{55}	P_{38}	P_{70}	P_{55}

Line 48 intersects

Line	ℓ_2	ℓ_3	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{28}	ℓ_{32}	ℓ_{36}	ℓ_{40}	ℓ_{44}	ℓ_{49}	ℓ_{50}	ℓ_{51}	ℓ_{52}	ℓ_{53}	ℓ_{54}	ℓ_{55}
in point	P_{11}	P_3	P_3	P_{42}	P_{61}	P_{81}	P_3	P_{42}	P_{61}	P_{81}	P_3	P_3	P_3	P_3	P_3	P_3	P_{11}	P_{11}	P_{11}	P_3	P_{61}	P_{81}	P_{42}

Line 49 intersects

Line	ℓ_2	ℓ_4	ℓ_7	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{25}	ℓ_{30}	ℓ_{35}	ℓ_{37}	ℓ_{42}	ℓ_{47}	ℓ_{48}	ℓ_{50}	ℓ_{51}	ℓ_{52}	ℓ_{53}	ℓ_{54}
in point	P_{11}	P_{26}	P_{38}	P_{26}	P_{38}	P_{65}	P_{77}	P_{38}	P_{26}	P_{77}	P_{65}	P_{26}	P_{26}	P_{26}	P_{38}	P_{38}	P_{38}	P_{11}	P_{11}	P_{11}	P_{26}	P_{38}	P_{77}

Line 50 intersects

Line	ℓ_2	ℓ_5	ℓ_8	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{26}	ℓ_{31}	ℓ_{33}	ℓ_{38}	ℓ_{43}	ℓ_{45}	ℓ_{48}	ℓ_{49}	ℓ_{50}	ℓ_{51}	ℓ_{52}	ℓ_{53}
in point	P_{11}	P_{30}	P_{53}	P_{30}	P_{49}	P_{53}	P_{73}	P_{53}	P_{73}	P_{30}	P_{49}	P_{30}	P_{30}	P_{30}	P_{53}	P_{53}	P_{53}	P_{11}	P_{11}	P_{11}	P_{30}	P_{49}	P_{53}

Line 51 intersects

Line	ℓ_2	ℓ_6	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{27}	ℓ_{29}	ℓ_{34}	ℓ_{39}	ℓ_{41}	ℓ_{46}	ℓ_{48}	ℓ_{49}	ℓ_{50}
in point	P_{11}	P_{34}	P_{69}	P_{34}	P_{45}	P_{57}	P_{69}	P_{69}	P_{57}	P_{45}	P_{34}	P_{34}	P_{34}	P_{34}	P_{69}	P_{69}	P_{69}	P_{11}	P_{11}	P_{11}

Line 52 intersects

Line	ℓ_2	ℓ_3	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{28}	ℓ_{32}	ℓ_{36}	ℓ_{40}	ℓ_{44}	ℓ_{48}	ℓ_{49}	ℓ_{50}	ℓ_{51}
in point	P_{15}	P_3	P_3	P_{45}	P_{65}	P_{73}	P_3	P_{73}	P_{45}	P_{65}	P_3	P_3	P_3	P_3	P_3	P_3	P_3	P_{65}	P_{73}	P_{45}

Line 53 intersects

Line	ℓ_2	ℓ_4	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{25}	ℓ_{30}	ℓ_{35}	ℓ_{39}	ℓ_{41}	ℓ_{46}	ℓ_{48}	ℓ_{49}	ℓ_{50}
in point	P_{15}	P_{26}	P_{69}	P_{26}	P_{49}	P_{61}	P_{69}	P_{69}	P_{26}	P_{61}	P_{49}	P_{26}	P_{26}	P_{26}	P_{69}	P_{69}	P_{69}	P_{61}	P_{26}	P_{45}

Line 54 intersects

Line	ℓ_2	ℓ_5	ℓ_7	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{26}	ℓ_{31}	ℓ_{33}	ℓ_{37}	ℓ_{42}	ℓ_{47}	ℓ_{48}	ℓ_{49}	ℓ_{50}
in point	P_{15}	P_{30}	P_{38}	P_{30}	P_{38}	P_{57}	P_{81}	P_{38}	P_{57}	P_{30}	P_{81}	P_{30}	P_{30}	P_{30}	P_{38}	P_{38}	P_{38}	P_{81}	P_{38}	P_{38}

Line 55 intersects

Line	ℓ_2	ℓ_6	ℓ_8	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{27}	ℓ_{29}	ℓ_{34}	ℓ_{38}	ℓ_{43}	ℓ_{45}	ℓ_{48}	ℓ_{49}	ℓ_{50}
in point	P_{15}	P_{34}	P_{53}	P_{34}	P_{42}	P_{53}	P_{77}	P_{53}	P_{42}	P_{77}	P_{34}	P_{34}	P_{34}	P_{34}	P_{53}	P_{53}	P_{53}	P_{42}	P_{77}	P_{53}

Line 56 intersects

Line	ℓ_2	ℓ_3	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{28}	ℓ_{32}	ℓ_{36}	ℓ_{40}	ℓ_{44}	ℓ_{48}	ℓ_{49}	ℓ_{50}	ℓ_{51}
in point	P_{19}	P_3	P_3	P_{49}	P_{57}	P_{77}	P_3	P_{57}	P_{77}	P_{49}	P_3	P_3	P_3	P_3	P_3	P_3	P_3	P_{77}	P_{49}	P_{57}

Line 57 intersects

Line	ℓ_2	ℓ_4	ℓ_8	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{25}	ℓ_{30}	ℓ_{35}	ℓ_{38}	ℓ_{43}	ℓ_{45}	ℓ_{48}	ℓ_{49}	ℓ_{50}
in point	P_{19}	P_{26}	P_{53}	P_{26}	P_{45}	P_{53}	P_{81}	P_{53}	P_{26}	P_{45}	P_{81}	P_{26}	P_{26}	P_{26}	P_{53}	P_{53}	P_{53}	P_{81}	P_{26}	P_{53}

Line 58 intersects

Line	ℓ_2	ℓ_5	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{26}	ℓ_{31}	ℓ_{33}	ℓ_{39}	ℓ_{41}	ℓ_{46}	ℓ_{48}	ℓ_{49}	ℓ_{50}
in point	P_{19}	P_{30}	P_{69}	P_{30}	P_{42}	P_{65}	P_{69}	P_{69}	P_{42}	P_{30}	P_{65}	P_{30}	P_{30}	P_{30}	P_{69}	P_{69}	P_{69}	P_{42}	P_{65}	P_{30}

Line 59 intersects

Line	ℓ_2	ℓ_6	ℓ_7	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{27}	ℓ_{29}	ℓ_{34}	ℓ_{37}	ℓ_{42}	ℓ_{47}	ℓ_{48}	ℓ_{49}	ℓ_{50}
in point	P_{19}	P_{34}	P_{38}	P_{34}	P_{38}	P_{61}	P_{73}	P_{38}	P_{73}	P_{61}	P_{34}	P_{34}	P_{34}	P_{34}	P_{38}	P_{38}	P_{38}	P_{61}	P_{38}	P_{73}

The surface has 49 points:

The points on the surface are:

$$0 : P_0 = (1, 0, 0, 0)$$

$$1 : P_1 = (0, 1, 0, 0)$$

$$2 : P_2 = (0, 0, 1, 0)$$

$$3 : P_3 = (0, 0, 0, 1)$$

$$4 : P_5 = (1, 1, 0, 0)$$

$$5 : P_6 = (2, 1, 0, 0)$$

$$6 : P_7 = (3, 1, 0, 0)$$

$$7 : P_8 = (1, 0, 1, 0)$$

$$8 : P_9 = (2, 0, 1, 0)$$

$$9 : P_{10} = (3, 0, 1, 0)$$

$$10 : P_{11} = (0, 1, 1, 0)$$

$$11 : P_{15} = (0, 2, 1, 0)$$

$$12 : P_{19} = (0, 3, 1, 0)$$

$$13 : P_{23} = (1, 0, 0, 1)$$

$$14 : P_{24} = (2, 0, 0, 1)$$

$$15 : P_{25} = (3, 0, 0, 1)$$

$$16 : P_{26} = (0, 1, 0, 1)$$

$$17 : P_{27} = (1, 1, 0, 1)$$

$$18 : P_{28} = (2, 1, 0, 1)$$

$$19 : P_{29} = (3, 1, 0, 1)$$

$$20 : P_{30} = (0, 2, 0, 1)$$

$$21 : P_{31} = (1, 2, 0, 1)$$

$$22 : P_{32} = (2, 2, 0, 1)$$

$$23 : P_{33} = (3, 2, 0, 1)$$

$$24 : P_{34} = (0, 3, 0, 1)$$

$$25 : P_{35} = (1, 3, 0, 1)$$

$$26 : P_{36} = (2, 3, 0, 1)$$

27 : $P_{37} = (3, 3, 0, 1)$
 28 : $P_{38} = (0, 0, 1, 1)$
 29 : $P_{39} = (1, 0, 1, 1)$
 30 : $P_{40} = (2, 0, 1, 1)$
 31 : $P_{41} = (3, 0, 1, 1)$
 32 : $P_{42} = (0, 1, 1, 1)$
 33 : $P_{45} = (0, 2, 1, 1)$
 34 : $P_{49} = (0, 3, 1, 1)$

35 : $P_{53} = (0, 0, 2, 1)$
 36 : $P_{54} = (1, 0, 2, 1)$
 37 : $P_{55} = (2, 0, 2, 1)$
 38 : $P_{56} = (3, 0, 2, 1)$
 39 : $P_{57} = (0, 1, 2, 1)$
 40 : $P_{61} = (0, 2, 2, 1)$
 41 : $P_{65} = (0, 3, 2, 1)$
 42 : $P_{69} = (0, 0, 3, 1)$

43 : $P_{70} = (1, 0, 3, 1)$
 44 : $P_{71} = (2, 0, 3, 1)$
 45 : $P_{72} = (3, 0, 3, 1)$
 46 : $P_{73} = (0, 1, 3, 1)$
 47 : $P_{77} = (0, 2, 3, 1)$
 48 : $P_{81} = (0, 3, 3, 1)$