

# Rank-31 over GF(16)

January 15, 2021

## The equation

The equation of the surface is :

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

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

The point rank of the equation over GF(16) is 563

## General information

Number of lines	27
Number of points	369
Number of singular points	0
Number of Eckardt points	45
Number of double points	0
Number of single points	324
Number of points off lines	0
Number of Hesse planes	40
Number of axes	240
Type of points on lines	$17^{27}$
Type of lines on points	$3^{45}, 1^{324}$

## Singular Points

The surface has 0 singular points:

## The 27 Lines

The lines and their Pluecker coordinates are:

$$\begin{aligned} \ell_0 = a_1 &= \left[ \begin{array}{cccc} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & \delta^5 \end{array} \right]_{540} = \left[ \begin{array}{cccc} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 11 \end{array} \right]_{540} = \mathbf{Pl}(0, 0, 10, 11, 11, 1)_{50505} \\ \ell_1 = a_2 &= \left[ \begin{array}{cccc} 1 & \delta^5 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{array} \right]_{3260} = \left[ \begin{array}{cccc} 1 & 11 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{array} \right]_{3260} = \mathbf{Pl}(0, 0, 1, 1, 10, 1)_{46146} \end{aligned}$$

$$\begin{aligned}
\ell_2 = a_3 &= \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{289} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{289} = \mathbf{Pl}(1, 1, 0, 0, 1, 1)_{8961} \\
\ell_3 = a_4 &= \begin{bmatrix} 1 & 0 & \delta^5 & 0 \\ 0 & 1 & 0 & \delta^5 \end{bmatrix}_{3179} = \begin{bmatrix} 1 & 0 & 11 & 0 \\ 0 & 1 & 0 & 11 \end{bmatrix}_{3179} = \mathbf{Pl}(10, 11, 0, 0, 1, 1)_{8970} \\
\ell_4 = a_5 &= \begin{bmatrix} 1 & 0 & 0 & \delta^{10} \\ 0 & 1 & \delta^{10} & 0 \end{bmatrix}_{43690} = \begin{bmatrix} 1 & 0 & 0 & 10 \\ 0 & 1 & 10 & 0 \end{bmatrix}_{43690} = \mathbf{Pl}(11, 10, 1, 1, 0, 0)_{74} \\
\ell_5 = a_6 &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & \delta^5 & 0 \end{bmatrix}_{4379} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 11 & 0 \end{bmatrix}_{4379} = \mathbf{Pl}(10, 11, 11, 1, 0, 0)_{223} \\
\ell_6 = b_1 &= \begin{bmatrix} 1 & 0 & \delta^5 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{3019} = \begin{bmatrix} 1 & 0 & 11 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{3019} = \mathbf{Pl}(1, 1, 0, 0, 10, 1)_{45681} \\
\ell_7 = b_2 &= \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & \delta^5 \end{bmatrix}_{449} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 11 \end{bmatrix}_{449} = \mathbf{Pl}(10, 11, 0, 0, 11, 1)_{49770} \\
\ell_8 = b_3 &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & \delta^{10} & 0 \end{bmatrix}_{4378} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 10 & 0 \end{bmatrix}_{4378} = \mathbf{Pl}(11, 10, 10, 1, 0, 0)_{209} \\
\ell_9 = b_4 &= \begin{bmatrix} 1 & 0 & 0 & \delta^{10} \\ 0 & 1 & \delta^5 & 0 \end{bmatrix}_{43691} = \begin{bmatrix} 1 & 0 & 0 & 10 \\ 0 & 1 & 11 & 0 \end{bmatrix}_{43691} = \mathbf{Pl}(10, 11, 10, 1, 0, 0)_{208} \\
\ell_{10} = b_5 &= \begin{bmatrix} 1 & \delta^5 & 0 & 0 \\ 0 & 0 & 1 & \delta^5 \end{bmatrix}_{3270} = \begin{bmatrix} 1 & 11 & 0 & 0 \\ 0 & 0 & 1 & 11 \end{bmatrix}_{3270} = \mathbf{Pl}(0, 0, 10, 11, 1, 1)_{9705} \\
\ell_{11} = b_6 &= \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{530} = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{530} = \mathbf{Pl}(0, 0, 1, 1, 1, 1)_{9426} \\
\ell_{12} = c_{12} &= \begin{bmatrix} 1 & 0 & 0 & \delta^5 \\ 0 & 1 & 1 & 0 \end{bmatrix}_{48049} = \begin{bmatrix} 1 & 0 & 0 & 11 \\ 0 & 1 & 1 & 0 \end{bmatrix}_{48049} = \mathbf{Pl}(1, 1, 10, 1, 0, 0)_{199} \\
\ell_{13} = c_{13} &= \begin{bmatrix} 1 & 0 & \delta^{10} & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{2746} = \begin{bmatrix} 1 & 0 & 10 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}_{2746} = \mathbf{Pl}(1, 1, 0, 0, 11, 1)_{49761} \\
\ell_{14} = c_{14} &= \begin{bmatrix} 1 & 0 & \delta^5 & 0 \\ 0 & 1 & 0 & \delta^{10} \end{bmatrix}_{3163} = \begin{bmatrix} 1 & 0 & 11 & 0 \\ 0 & 1 & 0 & 10 \end{bmatrix}_{3163} = \mathbf{Pl}(11, 10, 0, 0, 11, 1)_{49771} \\
\ell_{15} = c_{15} &= \begin{bmatrix} 1 & \delta^{10} & 0 & 0 \\ 0 & 0 & 1 & \delta^5 \end{bmatrix}_{2997} = \begin{bmatrix} 1 & 10 & 0 & 0 \\ 0 & 0 & 1 & 11 \end{bmatrix}_{2997} = \mathbf{Pl}(0, 0, 10, 11, 10, 1)_{46425} \\
\ell_{16} = c_{16} &= \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & \delta^{10} \end{bmatrix}_{539} = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 10 \end{bmatrix}_{539} = \mathbf{Pl}(0, 0, 11, 10, 10, 1)_{46456} \\
\ell_{17} = c_{23} &= \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & \delta^{10} \end{bmatrix}_{433} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 10 \end{bmatrix}_{433} = \mathbf{Pl}(11, 10, 0, 0, 10, 1)_{45691} \\
\ell_{18} = c_{24} &= \begin{bmatrix} 1 & 0 & \delta^{10} & 0 \\ 0 & 1 & 0 & \delta^5 \end{bmatrix}_{2906} = \begin{bmatrix} 1 & 0 & 10 & 0 \\ 0 & 1 & 0 & 11 \end{bmatrix}_{2906} = \mathbf{Pl}(10, 11, 0, 0, 10, 1)_{45690} \\
\ell_{19} = c_{25} &= \begin{bmatrix} 1 & \delta^5 & 0 & 0 \\ 0 & 0 & 1 & \delta^{10} \end{bmatrix}_{3269} = \begin{bmatrix} 1 & 11 & 0 & 0 \\ 0 & 0 & 1 & 10 \end{bmatrix}_{3269} = \mathbf{Pl}(0, 0, 11, 10, 11, 1)_{50536} \\
\ell_{20} = c_{26} &= \begin{bmatrix} 1 & \delta^{10} & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{2987} = \begin{bmatrix} 1 & 10 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{2987} = \mathbf{Pl}(0, 0, 1, 1, 11, 1)_{50226} \\
\ell_{21} = c_{34} &= \begin{bmatrix} 1 & \delta^{10} & 0 & 0 \\ 0 & 0 & 1 & \delta^{10} \end{bmatrix}_{2996} = \begin{bmatrix} 1 & 10 & 0 & 0 \\ 0 & 0 & 1 & 10 \end{bmatrix}_{2996} = \mathbf{Pl}(0, 0, 11, 10, 1, 1)_{9736} \\
\ell_{22} = c_{35} &= \begin{bmatrix} 1 & 0 & 0 & \delta^5 \\ 0 & 1 & \delta^{10} & 0 \end{bmatrix}_{48058} = \begin{bmatrix} 1 & 0 & 0 & 11 \\ 0 & 1 & 10 & 0 \end{bmatrix}_{48058} = \mathbf{Pl}(11, 10, 11, 1, 0, 0)_{224}
\end{aligned}$$

$$\begin{aligned}
\ell_{23} = c_{36} &= \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 1 & 0 \end{bmatrix}_{4369} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 1 & 1 & 0 \end{bmatrix}_{4369} = \mathbf{Pl}(1, 1, 1, 1, 0, 0)_{64} \\
\ell_{24} = c_{45} &= \begin{bmatrix} 1 & 0 & 0 & \delta^{10} \\ 0 & 1 & 1 & 0 \end{bmatrix}_{43681} = \begin{bmatrix} 1 & 0 & 0 & 10 \\ 0 & 1 & 1 & 0 \end{bmatrix}_{43681} = \mathbf{Pl}(1, 1, 11, 1, 0, 0)_{214} \\
\ell_{25} = c_{46} &= \begin{bmatrix} 1 & 0 & 0 & \delta^5 \\ 0 & 1 & \delta^5 & 0 \end{bmatrix}_{48059} = \begin{bmatrix} 1 & 0 & 0 & 11 \\ 0 & 1 & 11 & 0 \end{bmatrix}_{48059} = \mathbf{Pl}(10, 11, 1, 1, 0, 0)_{73} \\
\ell_{26} = c_{56} &= \begin{bmatrix} 1 & 0 & \delta^{10} & 0 \\ 0 & 1 & 0 & \delta^{10} \end{bmatrix}_{2890} = \begin{bmatrix} 1 & 0 & 10 & 0 \\ 0 & 1 & 0 & 10 \end{bmatrix}_{2890} = \mathbf{Pl}(11, 10, 0, 0, 1, 1)_{8971}
\end{aligned}$$

Rank of lines: ( 540, 3260, 289, 3179, 43690, 4379, 3019, 449, 4378, 43691, 3270, 530, 48049, 2746, 3163, 2997, 539, 433, 2906, 3269, 2987, 2996, 48058, 4369, 43681, 48059, 2890 )

Rank of points on Klein quadric: ( 50505, 46146, 8961, 8970, 74, 223, 45681, 49770, 209, 208, 9705, 9426, 199, 49761, 49771, 46425, 46456, 45691, 45690, 50536, 50226, 9736, 224, 64, 214, 73, 8971 )

## Eckardt Points

The surface has 45 Eckardt points:

- 0 :  $E_{36} = a_3 \cap b_6 \cap c_{36} = P_4 = \mathbf{P}(1, 1, 1, 1) = \mathbf{P}(1, 1, 1, 1)$ ,
- 1 :  $E_{16} = a_1 \cap b_6 \cap c_{16} = P_5 = \mathbf{P}(1, 1, 0, 0) = \mathbf{P}(1, 1, 0, 0)$ ,
- 2 :  $E_{25} = a_2 \cap b_5 \cap c_{25} = P_{14} = \mathbf{P}(\delta^{10}, 1, 0, 0) = \mathbf{P}(10, 1, 0, 0)$ ,
- 3 :  $E_{15,26,34} = c_{15} \cap c_{26} \cap c_{34} = P_{15} = \mathbf{P}(\delta^5, 1, 0, 0) = \mathbf{P}(11, 1, 0, 0)$ ,
- 4 :  $E_{32} = a_3 \cap b_2 \cap c_{23} = P_{20} = \mathbf{P}(1, 0, 1, 0) = \mathbf{P}(1, 0, 1, 0)$ ,
- 5 :  $E_{41} = a_4 \cap b_1 \cap c_{14} = P_{29} = \mathbf{P}(\delta^{10}, 0, 1, 0) = \mathbf{P}(10, 0, 1, 0)$ ,
- 6 :  $E_{13,24,56} = c_{13} \cap c_{24} \cap c_{56} = P_{30} = \mathbf{P}(\delta^5, 0, 1, 0) = \mathbf{P}(11, 0, 1, 0)$ ,
- 7 :  $E_{12,36,45} = c_{12} \cap c_{36} \cap c_{45} = P_{35} = \mathbf{P}(0, 1, 1, 0) = \mathbf{P}(0, 1, 1, 0)$ ,
- 8 :  $E_{64} = a_6 \cap b_4 \cap c_{46} = P_{179} = \mathbf{P}(0, \delta^{10}, 1, 0) = \mathbf{P}(0, 10, 1, 0)$ ,
- 9 :  $E_{53} = a_5 \cap b_3 \cap c_{35} = P_{195} = \mathbf{P}(0, \delta^5, 1, 0) = \mathbf{P}(0, 11, 1, 0)$ ,
- 10 :  $E_{63} = a_6 \cap b_3 \cap c_{36} = P_{275} = \mathbf{P}(1, 0, 0, 1) = \mathbf{P}(1, 0, 0, 1)$ ,
- 11 :  $E_{12,35,46} = c_{12} \cap c_{35} \cap c_{46} = P_{284} = \mathbf{P}(\delta^{10}, 0, 0, 1) = \mathbf{P}(10, 0, 0, 1)$ ,
- 12 :  $E_{54} = a_5 \cap b_4 \cap c_{45} = P_{285} = \mathbf{P}(\delta^5, 0, 0, 1) = \mathbf{P}(11, 0, 0, 1)$ ,
- 13 :  $E_{31} = a_3 \cap b_1 \cap c_{13} = P_{290} = \mathbf{P}(0, 1, 0, 1) = \mathbf{P}(0, 1, 0, 1)$ ,
- 14 :  $E_{42} = a_4 \cap b_2 \cap c_{24} = P_{434} = \mathbf{P}(0, \delta^{10}, 0, 1) = \mathbf{P}(0, 10, 0, 1)$ ,
- 15 :  $E_{14,23,56} = c_{14} \cap c_{23} \cap c_{56} = P_{450} = \mathbf{P}(0, \delta^5, 0, 1) = \mathbf{P}(0, 11, 0, 1)$ ,
- 16 :  $E_{26} = a_2 \cap b_6 \cap c_{26} = P_{530} = \mathbf{P}(0, 0, 1, 1) = \mathbf{P}(0, 0, 1, 1)$ ,
- 17 :  $E_{21} = a_2 \cap b_1 \cap c_{12} = P_{555} = \mathbf{P}(\delta^{10}, 1, 1, 1) = \mathbf{P}(10, 1, 1, 1)$ ,
- 18 :  $E_{13,26,45} = c_{13} \cap c_{26} \cap c_{45} = P_{556} = \mathbf{P}(\delta^5, 1, 1, 1) = \mathbf{P}(11, 1, 1, 1)$ ,
- 19 :  $E_{62} = a_6 \cap b_2 \cap c_{26} = P_{690} = \mathbf{P}(1, \delta^{10}, 1, 1) = \mathbf{P}(1, 10, 1, 1)$ ,
- 20 :  $E_{46} = a_4 \cap b_6 \cap c_{46} = P_{699} = \mathbf{P}(\delta^{10}, \delta^{10}, 1, 1) = \mathbf{P}(10, 10, 1, 1)$ ,
- 21 :  $E_{24} = a_2 \cap b_4 \cap c_{24} = P_{700} = \mathbf{P}(\delta^5, \delta^{10}, 1, 1) = \mathbf{P}(11, 10, 1, 1)$ ,
- 22 :  $E_{23} = a_2 \cap b_3 \cap c_{23} = P_{706} = \mathbf{P}(1, \delta^5, 1, 1) = \mathbf{P}(1, 11, 1, 1)$ ,
- 23 :  $E_{14,26,35} = c_{14} \cap c_{26} \cap c_{35} = P_{715} = \mathbf{P}(\delta^{10}, \delta^5, 1, 1) = \mathbf{P}(10, 11, 1, 1)$ ,
- 24 :  $E_{56} = a_5 \cap b_6 \cap c_{56} = P_{716} = \mathbf{P}(\delta^5, \delta^5, 1, 1) = \mathbf{P}(11, 11, 1, 1)$ ,
- 25 :  $E_{15} = a_1 \cap b_5 \cap c_{15} = P_{2833} = \mathbf{P}(0, 0, \delta^{10}, 1) = \mathbf{P}(0, 0, 10, 1)$ ,
- 26 :  $E_{13} = a_1 \cap b_3 \cap c_{13} = P_{2850} = \mathbf{P}(1, 1, \delta^{10}, 1) = \mathbf{P}(1, 1, 10, 1)$ ,
- 27 :  $E_{35} = a_3 \cap b_5 \cap c_{35} = P_{2859} = \mathbf{P}(\delta^{10}, 1, \delta^{10}, 1) = \mathbf{P}(10, 1, 10, 1)$ ,
- 28 :  $E_{51} = a_5 \cap b_1 \cap c_{15} = P_{2860} = \mathbf{P}(\delta^5, 1, \delta^{10}, 1) = \mathbf{P}(11, 1, 10, 1)$ ,
- 29 :  $E_{15,24,36} = c_{15} \cap c_{24} \cap c_{36} = P_{2994} = \mathbf{P}(1, \delta^{10}, \delta^{10}, 1) = \mathbf{P}(1, 10, 10, 1)$ ,
- 30 :  $E_{12} = a_1 \cap b_2 \cap c_{12} = P_{3003} = \mathbf{P}(\delta^{10}, \delta^{10}, \delta^{10}, 1) = \mathbf{P}(10, 10, 10, 1)$ ,
- 31 :  $E_{45} = a_4 \cap b_5 \cap c_{45} = P_{3004} = \mathbf{P}(\delta^5, \delta^{10}, \delta^{10}, 1) = \mathbf{P}(11, 10, 10, 1)$ ,
- 32 :  $E_{65} = a_6 \cap b_5 \cap c_{56} = P_{3010} = \mathbf{P}(1, \delta^5, \delta^{10}, 1) = \mathbf{P}(1, 11, 10, 1)$ ,
- 33 :  $E_{15,23,46} = c_{15} \cap c_{23} \cap c_{46} = P_{3019} = \mathbf{P}(\delta^{10}, \delta^5, \delta^{10}, 1) = \mathbf{P}(10, 11, 10, 1)$ ,
- 34 :  $E_{14} = a_1 \cap b_4 \cap c_{14} = P_{3020} = \mathbf{P}(\delta^5, \delta^5, \delta^{10}, 1) = \mathbf{P}(11, 11, 10, 1)$ ,

- 35 :  $E_{16,25,34} = c_{16} \cap c_{25} \cap c_{34} = P_{3089} = \mathbf{P}(0, 0, \delta^5, 1) = \mathbf{P}(0, 0, 11, 1)$ ,  
 36 :  $E_{61} = a_6 \cap b_1 \cap c_{16} = P_{3106} = \mathbf{P}(1, 1, \delta^5, 1) = \mathbf{P}(1, 1, 11, 1)$ ,  
 37 :  $E_{13,25,46} = c_{13} \cap c_{25} \cap c_{46} = P_{3115} = \mathbf{P}(\delta^{10}, 1, \delta^5, 1) = \mathbf{P}(10, 1, 11, 1)$ ,  
 38 :  $E_{34} = a_3 \cap b_4 \cap c_{34} = P_{3116} = \mathbf{P}(\delta^5, 1, \delta^5, 1) = \mathbf{P}(11, 1, 11, 1)$ ,  
 39 :  $E_{43} = a_4 \cap b_3 \cap c_{34} = P_{3250} = \mathbf{P}(1, \delta^{10}, \delta^5, 1) = \mathbf{P}(1, 10, 11, 1)$ ,  
 40 :  $E_{16,24,35} = c_{16} \cap c_{24} \cap c_{35} = P_{3259} = \mathbf{P}(\delta^{10}, \delta^{10}, \delta^5, 1) = \mathbf{P}(10, 10, 11, 1)$ ,  
 41 :  $E_{52} = a_5 \cap b_2 \cap c_{25} = P_{3260} = \mathbf{P}(\delta^5, \delta^{10}, \delta^5, 1) = \mathbf{P}(11, 10, 11, 1)$ ,  
 42 :  $E_{14,25,36} = c_{14} \cap c_{25} \cap c_{36} = P_{3266} = \mathbf{P}(1, \delta^5, \delta^5, 1) = \mathbf{P}(1, 11, 11, 1)$ ,  
 43 :  $E_{12,34,56} = c_{12} \cap c_{34} \cap c_{56} = P_{3275} = \mathbf{P}(\delta^{10}, \delta^5, \delta^5, 1) = \mathbf{P}(10, 11, 11, 1)$ ,  
 44 :  $E_{16,23,45} = c_{16} \cap c_{23} \cap c_{45} = P_{3276} = \mathbf{P}(\delta^5, \delta^5, \delta^5, 1) = \mathbf{P}(11, 11, 11, 1)$ .

## Double Points

The surface has 0 Double points:  
 The double points on the surface are:

## Single Points

The surface has 324 single points:  
 The single points on the surface are:

- |  |  |
|--|--|
| 0 : $P_{563} = (2, 2, 1, 1)$ lies on line $b_6$      | 29 : $P_{752} = (15, 13, 1, 1)$ lies on line $a_2$     |
| 1 : $P_{574} = (13, 2, 1, 1)$ lies on line $a_2$     | 30 : $P_{759} = (6, 14, 1, 1)$ lies on line $c_{26}$   |
| 2 : $P_{576} = (15, 2, 1, 1)$ lies on line $c_{26}$  | 31 : $P_{761} = (8, 14, 1, 1)$ lies on line $a_2$      |
| 3 : $P_{580} = (3, 3, 1, 1)$ lies on line $b_6$      | 32 : $P_{767} = (14, 14, 1, 1)$ lies on line $b_6$     |
| 4 : $P_{581} = (4, 3, 1, 1)$ lies on line $c_{26}$   | 33 : $P_{771} = (2, 15, 1, 1)$ lies on line $a_2$      |
| 5 : $P_{584} = (7, 3, 1, 1)$ lies on line $a_2$      | 34 : $P_{782} = (13, 15, 1, 1)$ lies on line $c_{26}$  |
| 6 : $P_{596} = (3, 4, 1, 1)$ lies on line $a_2$      | 35 : $P_{784} = (15, 15, 1, 1)$ lies on line $b_6$     |
| 7 : $P_{597} = (4, 4, 1, 1)$ lies on line $b_6$      | 36 : $P_{803} = (2, 1, 2, 1)$ lies on line $a_3$       |
| 8 : $P_{600} = (7, 4, 1, 1)$ lies on line $c_{26}$   | 37 : $P_{814} = (13, 1, 2, 1)$ lies on line $b_1$      |
| 9 : $P_{614} = (5, 5, 1, 1)$ lies on line $b_6$      | 38 : $P_{816} = (15, 1, 2, 1)$ lies on line $c_{13}$   |
| 10 : $P_{618} = (9, 5, 1, 1)$ lies on line $a_2$     | 39 : $P_{818} = (1, 2, 2, 1)$ lies on line $c_{36}$    |
| 11 : $P_{621} = (12, 5, 1, 1)$ lies on line $c_{26}$ | 40 : $P_{827} = (10, 2, 2, 1)$ lies on line $c_{12}$   |
| 12 : $P_{631} = (6, 6, 1, 1)$ lies on line $b_6$     | 41 : $P_{828} = (11, 2, 2, 1)$ lies on line $c_{45}$   |
| 13 : $P_{633} = (8, 6, 1, 1)$ lies on line $c_{26}$  | 42 : $P_{947} = (2, 10, 2, 1)$ lies on line $b_2$      |
| 14 : $P_{639} = (14, 6, 1, 1)$ lies on line $a_2$    | 43 : $P_{958} = (13, 10, 2, 1)$ lies on line $a_4$     |
| 15 : $P_{644} = (3, 7, 1, 1)$ lies on line $c_{26}$  | 44 : $P_{960} = (15, 10, 2, 1)$ lies on line $c_{24}$  |
| 16 : $P_{645} = (4, 7, 1, 1)$ lies on line $a_2$     | 45 : $P_{963} = (2, 11, 2, 1)$ lies on line $c_{23}$   |
| 17 : $P_{648} = (7, 7, 1, 1)$ lies on line $b_6$     | 46 : $P_{974} = (13, 11, 2, 1)$ lies on line $c_{14}$  |
| 18 : $P_{663} = (6, 8, 1, 1)$ lies on line $a_2$     | 47 : $P_{976} = (15, 11, 2, 1)$ lies on line $c_{56}$  |
| 19 : $P_{665} = (8, 8, 1, 1)$ lies on line $b_6$     | 48 : $P_{994} = (1, 13, 2, 1)$ lies on line $a_6$      |
| 20 : $P_{671} = (14, 8, 1, 1)$ lies on line $c_{26}$ | 49 : $P_{1003} = (10, 13, 2, 1)$ lies on line $c_{46}$ |
| 21 : $P_{678} = (5, 9, 1, 1)$ lies on line $c_{26}$  | 50 : $P_{1004} = (11, 13, 2, 1)$ lies on line $b_4$    |
| 22 : $P_{682} = (9, 9, 1, 1)$ lies on line $b_6$     | 51 : $P_{1026} = (1, 15, 2, 1)$ lies on line $b_3$     |
| 23 : $P_{685} = (12, 9, 1, 1)$ lies on line $a_2$    | 52 : $P_{1035} = (10, 15, 2, 1)$ lies on line $c_{35}$ |
| 24 : $P_{726} = (5, 12, 1, 1)$ lies on line $a_2$    | 53 : $P_{1036} = (11, 15, 2, 1)$ lies on line $a_5$    |
| 25 : $P_{730} = (9, 12, 1, 1)$ lies on line $c_{26}$ | 54 : $P_{1060} = (3, 1, 3, 1)$ lies on line $a_3$      |
| 26 : $P_{733} = (12, 12, 1, 1)$ lies on line $b_6$   | 55 : $P_{1061} = (4, 1, 3, 1)$ lies on line $c_{13}$   |
| 27 : $P_{739} = (2, 13, 1, 1)$ lies on line $c_{26}$ | 56 : $P_{1064} = (7, 1, 3, 1)$ lies on line $b_1$      |
| 28 : $P_{750} = (13, 13, 1, 1)$ lies on line $b_6$   | 57 : $P_{1090} = (1, 3, 3, 1)$ lies on line $c_{36}$   |

58 :  $P_{1099} = (10, 3, 3, 1)$  lies on line  $c_{12}$   
 59 :  $P_{1100} = (11, 3, 3, 1)$  lies on line  $c_{45}$   
 60 :  $P_{1106} = (1, 4, 3, 1)$  lies on line  $b_3$   
 61 :  $P_{1115} = (10, 4, 3, 1)$  lies on line  $c_{35}$   
 62 :  $P_{1116} = (11, 4, 3, 1)$  lies on line  $a_5$   
 63 :  $P_{1154} = (1, 7, 3, 1)$  lies on line  $a_6$   
 64 :  $P_{1163} = (10, 7, 3, 1)$  lies on line  $c_{46}$   
 65 :  $P_{1164} = (11, 7, 3, 1)$  lies on line  $b_4$   
 66 :  $P_{1204} = (3, 10, 3, 1)$  lies on line  $b_2$   
 67 :  $P_{1205} = (4, 10, 3, 1)$  lies on line  $c_{24}$   
 68 :  $P_{1208} = (7, 10, 3, 1)$  lies on line  $a_4$   
 69 :  $P_{1220} = (3, 11, 3, 1)$  lies on line  $c_{23}$   
 70 :  $P_{1221} = (4, 11, 3, 1)$  lies on line  $c_{56}$   
 71 :  $P_{1224} = (7, 11, 3, 1)$  lies on line  $c_{14}$   
 72 :  $P_{1316} = (3, 1, 4, 1)$  lies on line  $b_1$   
 73 :  $P_{1317} = (4, 1, 4, 1)$  lies on line  $a_3$   
 74 :  $P_{1320} = (7, 1, 4, 1)$  lies on line  $c_{13}$   
 75 :  $P_{1346} = (1, 3, 4, 1)$  lies on line  $a_6$   
 76 :  $P_{1355} = (10, 3, 4, 1)$  lies on line  $c_{46}$   
 77 :  $P_{1356} = (11, 3, 4, 1)$  lies on line  $b_4$   
 78 :  $P_{1362} = (1, 4, 4, 1)$  lies on line  $c_{36}$   
 79 :  $P_{1371} = (10, 4, 4, 1)$  lies on line  $c_{12}$   
 80 :  $P_{1372} = (11, 4, 4, 1)$  lies on line  $c_{45}$   
 81 :  $P_{1410} = (1, 7, 4, 1)$  lies on line  $b_3$   
 82 :  $P_{1419} = (10, 7, 4, 1)$  lies on line  $c_{35}$   
 83 :  $P_{1420} = (11, 7, 4, 1)$  lies on line  $a_5$   
 84 :  $P_{1460} = (3, 10, 4, 1)$  lies on line  $a_4$   
 85 :  $P_{1461} = (4, 10, 4, 1)$  lies on line  $b_2$   
 86 :  $P_{1464} = (7, 10, 4, 1)$  lies on line  $c_{24}$   
 87 :  $P_{1476} = (3, 11, 4, 1)$  lies on line  $c_{14}$   
 88 :  $P_{1477} = (4, 11, 4, 1)$  lies on line  $c_{23}$   
 89 :  $P_{1480} = (7, 11, 4, 1)$  lies on line  $c_{56}$   
 90 :  $P_{1574} = (5, 1, 5, 1)$  lies on line  $a_3$   
 91 :  $P_{1578} = (9, 1, 5, 1)$  lies on line  $b_1$   
 92 :  $P_{1581} = (12, 1, 5, 1)$  lies on line  $c_{13}$   
 93 :  $P_{1634} = (1, 5, 5, 1)$  lies on line  $c_{36}$   
 94 :  $P_{1643} = (10, 5, 5, 1)$  lies on line  $c_{12}$   
 95 :  $P_{1644} = (11, 5, 5, 1)$  lies on line  $c_{45}$   
 96 :  $P_{1698} = (1, 9, 5, 1)$  lies on line  $a_6$   
 97 :  $P_{1707} = (10, 9, 5, 1)$  lies on line  $c_{46}$   
 98 :  $P_{1708} = (11, 9, 5, 1)$  lies on line  $b_4$   
 99 :  $P_{1718} = (5, 10, 5, 1)$  lies on line  $b_2$   
 100 :  $P_{1722} = (9, 10, 5, 1)$  lies on line  $a_4$   
 101 :  $P_{1725} = (12, 10, 5, 1)$  lies on line  $c_{24}$   
 102 :  $P_{1734} = (5, 11, 5, 1)$  lies on line  $c_{23}$   
 103 :  $P_{1738} = (9, 11, 5, 1)$  lies on line  $c_{14}$   
 104 :  $P_{1741} = (12, 11, 5, 1)$  lies on line  $c_{56}$   
 105 :  $P_{1746} = (1, 12, 5, 1)$  lies on line  $b_3$   
 106 :  $P_{1755} = (10, 12, 5, 1)$  lies on line  $c_{35}$   
 107 :  $P_{1756} = (11, 12, 5, 1)$  lies on line  $a_5$   
 108 :  $P_{1831} = (6, 1, 6, 1)$  lies on line  $a_3$   
 109 :  $P_{1833} = (8, 1, 6, 1)$  lies on line  $c_{13}$   
 110 :  $P_{1839} = (14, 1, 6, 1)$  lies on line  $b_1$   
 111 :  $P_{1906} = (1, 6, 6, 1)$  lies on line  $c_{36}$

112 :  $P_{1915} = (10, 6, 6, 1)$  lies on line  $c_{12}$   
 113 :  $P_{1916} = (11, 6, 6, 1)$  lies on line  $c_{45}$   
 114 :  $P_{1938} = (1, 8, 6, 1)$  lies on line  $b_3$   
 115 :  $P_{1947} = (10, 8, 6, 1)$  lies on line  $c_{35}$   
 116 :  $P_{1948} = (11, 8, 6, 1)$  lies on line  $a_5$   
 117 :  $P_{1975} = (6, 10, 6, 1)$  lies on line  $b_2$   
 118 :  $P_{1977} = (8, 10, 6, 1)$  lies on line  $c_{24}$   
 119 :  $P_{1983} = (14, 10, 6, 1)$  lies on line  $a_4$   
 120 :  $P_{1991} = (6, 11, 6, 1)$  lies on line  $c_{23}$   
 121 :  $P_{1993} = (8, 11, 6, 1)$  lies on line  $c_{56}$   
 122 :  $P_{1999} = (14, 11, 6, 1)$  lies on line  $c_{14}$   
 123 :  $P_{2034} = (1, 14, 6, 1)$  lies on line  $a_6$   
 124 :  $P_{2043} = (10, 14, 6, 1)$  lies on line  $c_{46}$   
 125 :  $P_{2044} = (11, 14, 6, 1)$  lies on line  $b_4$   
 126 :  $P_{2084} = (3, 1, 7, 1)$  lies on line  $c_{13}$   
 127 :  $P_{2085} = (4, 1, 7, 1)$  lies on line  $b_1$   
 128 :  $P_{2088} = (7, 1, 7, 1)$  lies on line  $a_3$   
 129 :  $P_{2114} = (1, 3, 7, 1)$  lies on line  $b_3$   
 130 :  $P_{2123} = (10, 3, 7, 1)$  lies on line  $c_{35}$   
 131 :  $P_{2124} = (11, 3, 7, 1)$  lies on line  $a_5$   
 132 :  $P_{2130} = (1, 4, 7, 1)$  lies on line  $a_6$   
 133 :  $P_{2139} = (10, 4, 7, 1)$  lies on line  $c_{46}$   
 134 :  $P_{2140} = (11, 4, 7, 1)$  lies on line  $b_4$   
 135 :  $P_{2178} = (1, 7, 7, 1)$  lies on line  $c_{36}$   
 136 :  $P_{2187} = (10, 7, 7, 1)$  lies on line  $c_{12}$   
 137 :  $P_{2188} = (11, 7, 7, 1)$  lies on line  $c_{45}$   
 138 :  $P_{2228} = (3, 10, 7, 1)$  lies on line  $c_{24}$   
 139 :  $P_{2229} = (4, 10, 7, 1)$  lies on line  $a_4$   
 140 :  $P_{2232} = (7, 10, 7, 1)$  lies on line  $b_2$   
 141 :  $P_{2244} = (3, 11, 7, 1)$  lies on line  $c_{56}$   
 142 :  $P_{2245} = (4, 11, 7, 1)$  lies on line  $c_{14}$   
 143 :  $P_{2248} = (7, 11, 7, 1)$  lies on line  $c_{23}$   
 144 :  $P_{2343} = (6, 1, 8, 1)$  lies on line  $b_1$   
 145 :  $P_{2345} = (8, 1, 8, 1)$  lies on line  $a_3$   
 146 :  $P_{2351} = (14, 1, 8, 1)$  lies on line  $c_{13}$   
 147 :  $P_{2418} = (1, 6, 8, 1)$  lies on line  $a_6$   
 148 :  $P_{2427} = (10, 6, 8, 1)$  lies on line  $c_{46}$   
 149 :  $P_{2428} = (11, 6, 8, 1)$  lies on line  $b_4$   
 150 :  $P_{2450} = (1, 8, 8, 1)$  lies on line  $c_{36}$   
 151 :  $P_{2459} = (10, 8, 8, 1)$  lies on line  $c_{12}$   
 152 :  $P_{2460} = (11, 8, 8, 1)$  lies on line  $c_{45}$   
 153 :  $P_{2487} = (6, 10, 8, 1)$  lies on line  $a_4$   
 154 :  $P_{2489} = (8, 10, 8, 1)$  lies on line  $b_2$   
 155 :  $P_{2495} = (14, 10, 8, 1)$  lies on line  $c_{24}$   
 156 :  $P_{2503} = (6, 11, 8, 1)$  lies on line  $c_{14}$   
 157 :  $P_{2505} = (8, 11, 8, 1)$  lies on line  $c_{23}$   
 158 :  $P_{2511} = (14, 11, 8, 1)$  lies on line  $c_{56}$   
 159 :  $P_{2546} = (1, 14, 8, 1)$  lies on line  $b_3$   
 160 :  $P_{2555} = (10, 14, 8, 1)$  lies on line  $c_{35}$   
 161 :  $P_{2556} = (11, 14, 8, 1)$  lies on line  $a_5$   
 162 :  $P_{2598} = (5, 1, 9, 1)$  lies on line  $c_{13}$   
 163 :  $P_{2602} = (9, 1, 9, 1)$  lies on line  $a_3$   
 164 :  $P_{2605} = (12, 1, 9, 1)$  lies on line  $b_1$   
 165 :  $P_{2658} = (1, 5, 9, 1)$  lies on line  $b_3$

166 :  $P_{2667} = (10, 5, 9, 1)$  lies on line  $c_{35}$   
 167 :  $P_{2668} = (11, 5, 9, 1)$  lies on line  $a_5$   
 168 :  $P_{2722} = (1, 9, 9, 1)$  lies on line  $c_{36}$   
 169 :  $P_{2731} = (10, 9, 9, 1)$  lies on line  $c_{12}$   
 170 :  $P_{2732} = (11, 9, 9, 1)$  lies on line  $c_{45}$   
 171 :  $P_{2742} = (5, 10, 9, 1)$  lies on line  $c_{24}$   
 172 :  $P_{2746} = (9, 10, 9, 1)$  lies on line  $b_2$   
 173 :  $P_{2749} = (12, 10, 9, 1)$  lies on line  $a_4$   
 174 :  $P_{2758} = (5, 11, 9, 1)$  lies on line  $c_{56}$   
 175 :  $P_{2762} = (9, 11, 9, 1)$  lies on line  $c_{23}$   
 176 :  $P_{2765} = (12, 11, 9, 1)$  lies on line  $c_{14}$   
 177 :  $P_{2770} = (1, 12, 9, 1)$  lies on line  $a_6$   
 178 :  $P_{2779} = (10, 12, 9, 1)$  lies on line  $c_{46}$   
 179 :  $P_{2780} = (11, 12, 9, 1)$  lies on line  $b_4$   
 180 :  $P_{2867} = (2, 2, 10, 1)$  lies on line  $a_1$   
 181 :  $P_{2878} = (13, 2, 10, 1)$  lies on line  $b_5$   
 182 :  $P_{2880} = (15, 2, 10, 1)$  lies on line  $c_{15}$   
 183 :  $P_{2884} = (3, 3, 10, 1)$  lies on line  $a_1$   
 184 :  $P_{2885} = (4, 3, 10, 1)$  lies on line  $c_{15}$   
 185 :  $P_{2888} = (7, 3, 10, 1)$  lies on line  $b_5$   
 186 :  $P_{2900} = (3, 4, 10, 1)$  lies on line  $b_5$   
 187 :  $P_{2901} = (4, 4, 10, 1)$  lies on line  $a_1$   
 188 :  $P_{2904} = (7, 4, 10, 1)$  lies on line  $c_{15}$   
 189 :  $P_{2918} = (5, 5, 10, 1)$  lies on line  $a_1$   
 190 :  $P_{2922} = (9, 5, 10, 1)$  lies on line  $b_5$   
 191 :  $P_{2925} = (12, 5, 10, 1)$  lies on line  $c_{15}$   
 192 :  $P_{2935} = (6, 6, 10, 1)$  lies on line  $a_1$   
 193 :  $P_{2937} = (8, 6, 10, 1)$  lies on line  $c_{15}$   
 194 :  $P_{2943} = (14, 6, 10, 1)$  lies on line  $b_5$   
 195 :  $P_{2948} = (3, 7, 10, 1)$  lies on line  $c_{15}$   
 196 :  $P_{2949} = (4, 7, 10, 1)$  lies on line  $b_5$   
 197 :  $P_{2952} = (7, 7, 10, 1)$  lies on line  $a_1$   
 198 :  $P_{2967} = (6, 8, 10, 1)$  lies on line  $b_5$   
 199 :  $P_{2969} = (8, 8, 10, 1)$  lies on line  $a_1$   
 200 :  $P_{2975} = (14, 8, 10, 1)$  lies on line  $c_{15}$   
 201 :  $P_{2982} = (5, 9, 10, 1)$  lies on line  $c_{15}$   
 202 :  $P_{2986} = (9, 9, 10, 1)$  lies on line  $a_1$   
 203 :  $P_{2989} = (12, 9, 10, 1)$  lies on line  $b_5$   
 204 :  $P_{3030} = (5, 12, 10, 1)$  lies on line  $b_5$   
 205 :  $P_{3034} = (9, 12, 10, 1)$  lies on line  $c_{15}$   
 206 :  $P_{3037} = (12, 12, 10, 1)$  lies on line  $a_1$   
 207 :  $P_{3043} = (2, 13, 10, 1)$  lies on line  $c_{15}$   
 208 :  $P_{3054} = (13, 13, 10, 1)$  lies on line  $a_1$   
 209 :  $P_{3056} = (15, 13, 10, 1)$  lies on line  $b_5$   
 210 :  $P_{3063} = (6, 14, 10, 1)$  lies on line  $c_{15}$   
 211 :  $P_{3065} = (8, 14, 10, 1)$  lies on line  $b_5$   
 212 :  $P_{3071} = (14, 14, 10, 1)$  lies on line  $a_1$   
 213 :  $P_{3075} = (2, 15, 10, 1)$  lies on line  $b_5$   
 214 :  $P_{3086} = (13, 15, 10, 1)$  lies on line  $c_{15}$   
 215 :  $P_{3088} = (15, 15, 10, 1)$  lies on line  $a_1$   
 216 :  $P_{3123} = (2, 2, 11, 1)$  lies on line  $c_{16}$   
 217 :  $P_{3134} = (13, 2, 11, 1)$  lies on line  $c_{25}$   
 218 :  $P_{3136} = (15, 2, 11, 1)$  lies on line  $c_{34}$   
 219 :  $P_{3140} = (3, 3, 11, 1)$  lies on line  $c_{16}$

220 :  $P_{3141} = (4, 3, 11, 1)$  lies on line  $c_{34}$   
 221 :  $P_{3144} = (7, 3, 11, 1)$  lies on line  $c_{25}$   
 222 :  $P_{3156} = (3, 4, 11, 1)$  lies on line  $c_{25}$   
 223 :  $P_{3157} = (4, 4, 11, 1)$  lies on line  $c_{16}$   
 224 :  $P_{3160} = (7, 4, 11, 1)$  lies on line  $c_{34}$   
 225 :  $P_{3174} = (5, 5, 11, 1)$  lies on line  $c_{16}$   
 226 :  $P_{3178} = (9, 5, 11, 1)$  lies on line  $c_{25}$   
 227 :  $P_{3181} = (12, 5, 11, 1)$  lies on line  $c_{34}$   
 228 :  $P_{3191} = (6, 6, 11, 1)$  lies on line  $c_{16}$   
 229 :  $P_{3193} = (8, 6, 11, 1)$  lies on line  $c_{34}$   
 230 :  $P_{3199} = (14, 6, 11, 1)$  lies on line  $c_{25}$   
 231 :  $P_{3204} = (3, 7, 11, 1)$  lies on line  $c_{34}$   
 232 :  $P_{3205} = (4, 7, 11, 1)$  lies on line  $c_{25}$   
 233 :  $P_{3208} = (7, 7, 11, 1)$  lies on line  $c_{16}$   
 234 :  $P_{3223} = (6, 8, 11, 1)$  lies on line  $c_{25}$   
 235 :  $P_{3225} = (8, 8, 11, 1)$  lies on line  $c_{16}$   
 236 :  $P_{3231} = (14, 8, 11, 1)$  lies on line  $c_{34}$   
 237 :  $P_{3238} = (5, 9, 11, 1)$  lies on line  $c_{34}$   
 238 :  $P_{3242} = (9, 9, 11, 1)$  lies on line  $c_{16}$   
 239 :  $P_{3245} = (12, 9, 11, 1)$  lies on line  $c_{25}$   
 240 :  $P_{3286} = (5, 12, 11, 1)$  lies on line  $c_{25}$   
 241 :  $P_{3290} = (9, 12, 11, 1)$  lies on line  $c_{34}$   
 242 :  $P_{3293} = (12, 12, 11, 1)$  lies on line  $c_{16}$   
 243 :  $P_{3299} = (2, 13, 11, 1)$  lies on line  $c_{34}$   
 244 :  $P_{3310} = (13, 13, 11, 1)$  lies on line  $c_{16}$   
 245 :  $P_{3312} = (15, 13, 11, 1)$  lies on line  $c_{25}$   
 246 :  $P_{3319} = (6, 14, 11, 1)$  lies on line  $c_{34}$   
 247 :  $P_{3321} = (8, 14, 11, 1)$  lies on line  $c_{25}$   
 248 :  $P_{3327} = (14, 14, 11, 1)$  lies on line  $c_{16}$   
 249 :  $P_{3331} = (2, 15, 11, 1)$  lies on line  $c_{25}$   
 250 :  $P_{3342} = (13, 15, 11, 1)$  lies on line  $c_{34}$   
 251 :  $P_{3344} = (15, 15, 11, 1)$  lies on line  $c_{16}$   
 252 :  $P_{3366} = (5, 1, 12, 1)$  lies on line  $b_1$   
 253 :  $P_{3370} = (9, 1, 12, 1)$  lies on line  $c_{13}$   
 254 :  $P_{3373} = (12, 1, 12, 1)$  lies on line  $a_3$   
 255 :  $P_{3426} = (1, 5, 12, 1)$  lies on line  $a_6$   
 256 :  $P_{3435} = (10, 5, 12, 1)$  lies on line  $c_{46}$   
 257 :  $P_{3436} = (11, 5, 12, 1)$  lies on line  $b_4$   
 258 :  $P_{3490} = (1, 9, 12, 1)$  lies on line  $b_3$   
 259 :  $P_{3499} = (10, 9, 12, 1)$  lies on line  $c_{35}$   
 260 :  $P_{3500} = (11, 9, 12, 1)$  lies on line  $a_5$   
 261 :  $P_{3510} = (5, 10, 12, 1)$  lies on line  $a_4$   
 262 :  $P_{3514} = (9, 10, 12, 1)$  lies on line  $c_{24}$   
 263 :  $P_{3517} = (12, 10, 12, 1)$  lies on line  $b_2$   
 264 :  $P_{3526} = (5, 11, 12, 1)$  lies on line  $c_{14}$   
 265 :  $P_{3530} = (9, 11, 12, 1)$  lies on line  $c_{56}$   
 266 :  $P_{3533} = (12, 11, 12, 1)$  lies on line  $c_{23}$   
 267 :  $P_{3538} = (1, 12, 12, 1)$  lies on line  $c_{36}$   
 268 :  $P_{3547} = (10, 12, 12, 1)$  lies on line  $c_{12}$   
 269 :  $P_{3548} = (11, 12, 12, 1)$  lies on line  $c_{45}$   
 270 :  $P_{3619} = (2, 1, 13, 1)$  lies on line  $c_{13}$   
 271 :  $P_{3630} = (13, 1, 13, 1)$  lies on line  $a_3$   
 272 :  $P_{3632} = (15, 1, 13, 1)$  lies on line  $b_1$   
 273 :  $P_{3634} = (1, 2, 13, 1)$  lies on line  $b_3$

274 :  $P_{3643} = (10, 2, 13, 1)$  lies on line  $c_{35}$   
 275 :  $P_{3644} = (11, 2, 13, 1)$  lies on line  $a_5$   
 276 :  $P_{3763} = (2, 10, 13, 1)$  lies on line  $c_{24}$   
 277 :  $P_{3774} = (13, 10, 13, 1)$  lies on line  $b_2$   
 278 :  $P_{3776} = (15, 10, 13, 1)$  lies on line  $a_4$   
 279 :  $P_{3779} = (2, 11, 13, 1)$  lies on line  $c_{56}$   
 280 :  $P_{3790} = (13, 11, 13, 1)$  lies on line  $c_{23}$   
 281 :  $P_{3792} = (15, 11, 13, 1)$  lies on line  $c_{14}$   
 282 :  $P_{3810} = (1, 13, 13, 1)$  lies on line  $c_{36}$   
 283 :  $P_{3819} = (10, 13, 13, 1)$  lies on line  $c_{12}$   
 284 :  $P_{3820} = (11, 13, 13, 1)$  lies on line  $c_{45}$   
 285 :  $P_{3842} = (1, 15, 13, 1)$  lies on line  $a_6$   
 286 :  $P_{3851} = (10, 15, 13, 1)$  lies on line  $c_{46}$   
 287 :  $P_{3852} = (11, 15, 13, 1)$  lies on line  $b_4$   
 288 :  $P_{3879} = (6, 1, 14, 1)$  lies on line  $c_{13}$   
 289 :  $P_{3881} = (8, 1, 14, 1)$  lies on line  $b_1$   
 290 :  $P_{3887} = (14, 1, 14, 1)$  lies on line  $a_3$   
 291 :  $P_{3954} = (1, 6, 14, 1)$  lies on line  $b_3$   
 292 :  $P_{3963} = (10, 6, 14, 1)$  lies on line  $c_{35}$   
 293 :  $P_{3964} = (11, 6, 14, 1)$  lies on line  $a_5$   
 294 :  $P_{3986} = (1, 8, 14, 1)$  lies on line  $a_6$   
 295 :  $P_{3995} = (10, 8, 14, 1)$  lies on line  $c_{46}$   
 296 :  $P_{3996} = (11, 8, 14, 1)$  lies on line  $b_4$   
 297 :  $P_{4023} = (6, 10, 14, 1)$  lies on line  $c_{24}$   
 298 :  $P_{4025} = (8, 10, 14, 1)$  lies on line  $a_4$   
 299 :  $P_{4031} = (14, 10, 14, 1)$  lies on line  $b_2$

300 :  $P_{4039} = (6, 11, 14, 1)$  lies on line  $c_{56}$   
 301 :  $P_{4041} = (8, 11, 14, 1)$  lies on line  $c_{14}$   
 302 :  $P_{4047} = (14, 11, 14, 1)$  lies on line  $c_{23}$   
 303 :  $P_{4082} = (1, 14, 14, 1)$  lies on line  $c_{36}$   
 304 :  $P_{4091} = (10, 14, 14, 1)$  lies on line  $c_{12}$   
 305 :  $P_{4092} = (11, 14, 14, 1)$  lies on line  $c_{45}$   
 306 :  $P_{4131} = (2, 1, 15, 1)$  lies on line  $b_1$   
 307 :  $P_{4142} = (13, 1, 15, 1)$  lies on line  $c_{13}$   
 308 :  $P_{4144} = (15, 1, 15, 1)$  lies on line  $a_3$   
 309 :  $P_{4146} = (1, 2, 15, 1)$  lies on line  $a_6$   
 310 :  $P_{4155} = (10, 2, 15, 1)$  lies on line  $c_{46}$   
 311 :  $P_{4156} = (11, 2, 15, 1)$  lies on line  $b_4$   
 312 :  $P_{4275} = (2, 10, 15, 1)$  lies on line  $a_4$   
 313 :  $P_{4286} = (13, 10, 15, 1)$  lies on line  $c_{24}$   
 314 :  $P_{4288} = (15, 10, 15, 1)$  lies on line  $b_2$   
 315 :  $P_{4291} = (2, 11, 15, 1)$  lies on line  $c_{14}$   
 316 :  $P_{4302} = (13, 11, 15, 1)$  lies on line  $c_{56}$   
 317 :  $P_{4304} = (15, 11, 15, 1)$  lies on line  $c_{23}$   
 318 :  $P_{4322} = (1, 13, 15, 1)$  lies on line  $b_3$   
 319 :  $P_{4331} = (10, 13, 15, 1)$  lies on line  $c_{35}$   
 320 :  $P_{4332} = (11, 13, 15, 1)$  lies on line  $a_5$   
 321 :  $P_{4354} = (1, 15, 15, 1)$  lies on line  $c_{36}$   
 322 :  $P_{4363} = (10, 15, 15, 1)$  lies on line  $c_{12}$   
 323 :  $P_{4364} = (11, 15, 15, 1)$  lies on line  $c_{45}$

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
		$a_1$	$a_2$	$a_3$	$a_4$	$a_5$	$a_6$	$b_1$	$b_2$	$b_3$	$b_4$	$b_5$	$b_6$	$c_{12}$	$c_{13}$	$c_{14}$	$c_{15}$	$c_{16}$	$c_{23}$	$c_{24}$	$c_{25}$	$c_{26}$	$c_{34}$	$c_{35}$	$c_{36}$	$c_{45}$	$c_{46}$	$c_{56}$
0	$a_1$	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
1	$a_2$	0	0	0	0	0	0	1	0	1	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	0	0
2	$a_3$	0	0	0	0	0	0	1	1	0	1	1	1	0	1	0	0	0	1	0	0	0	1	1	1	0	0	0
3	$a_4$	0	0	0	0	0	0	1	1	1	0	1	1	0	0	1	0	0	0	1	0	0	1	0	0	1	1	0
4	$a_5$	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	1	0	0	0	1	0	0	1	0	1	0	1
5	$a_6$	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	1
6	$b_1$	0	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
7	$b_2$	1	0	1	1	1	1	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	0	0	0	0	0
8	$b_3$	1	1	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	1	0	0	0
9	$b_4$	1	1	1	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	1	0
10	$b_5$	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	1
11	$b_6$	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	1
12	$c_{12}$	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
13	$c_{13}$	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	1	1
14	$c_{14}$	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	1	1	0	0	1
15	$c_{15}$	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1	1	0	1	1	0	1	0	1	0
16	$c_{16}$	1	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	1	1	1	0	1	1	0	1	0	0
17	$c_{23}$	0	1	1	0	0	0	0	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	1	1
18	$c_{24}$	0	1	0	1	0	0	0	1	0	1	0	0	0	1	0	1	1	0	0	0	0	0	1	1	0	0	1
19	$c_{25}$	0	1	0	0	1	0	0	1	0	0	1	0	0	1	1	0	1	0	0	0	0	1	0	1	0	1	0
20	$c_{26}$	0	1	0	0	0	1	0	1	0	0	0	1	0	1	1	1	0	0	0	0	0	1	1	0	1	0	0
21	$c_{34}$	0	0	1	1	0	0	0	0	1	1	0	0	1	0	0	1	1	0	0	1	1	0	0	0	0	0	1
22	$c_{35}$	0	0	1	0	1	0	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0	0	1	0
23	$c_{36}$	0	0	1	0	0	1	0	0	1	0	0	1	1	0	1	1	0	0	1	1	0	0	0	0	1	0	0
24	$c_{45}$	0	0	0	1	1	0	0	0	0	1	1	0	1	1	0	0	1	1	0	0	1	0	0	1	0	0	0
25	$c_{46}$	0	0	0	1	0	1	0	0	0	1	0	1	1	1	0	1	0	1	0	1	0	0	1	0	0	0	0
26	$c_{56}$	0	0	0	0	1	1	0	0	0	0	1	1	1	1	1	0	0	1	1	0	0	1	0	0	0	0	0

Neighbor sets in the line intersection graph:

Line 0 intersects

Line	$\ell_7$	$\ell_8$	$\ell_9$	$\ell_{10}$	$\ell_{11}$	$\ell_{12}$	$\ell_{13}$	$\ell_{14}$	$\ell_{15}$	$\ell_{16}$
in point	$P_{3003}$	$P_{2850}$	$P_{3020}$	$P_{2833}$	$P_5$	$P_{3003}$	$P_{2850}$	$P_{3020}$	$P_{2833}$	$P_5$

Line 1 intersects

Line	$\ell_6$	$\ell_8$	$\ell_9$	$\ell_{10}$	$\ell_{11}$	$\ell_{12}$	$\ell_{17}$	$\ell_{18}$	$\ell_{19}$	$\ell_{20}$
in point	$P_{555}$	$P_{706}$	$P_{700}$	$P_{14}$	$P_{530}$	$P_{555}$	$P_{706}$	$P_{700}$	$P_{14}$	$P_{530}$

Line 2 intersects

Line	$\ell_6$	$\ell_7$	$\ell_9$	$\ell_{10}$	$\ell_{11}$	$\ell_{13}$	$\ell_{17}$	$\ell_{21}$	$\ell_{22}$	$\ell_{23}$
in point	$P_{290}$	$P_{20}$	$P_{3116}$	$P_{2859}$	$P_4$	$P_{290}$	$P_{20}$	$P_{3116}$	$P_{2859}$	$P_4$

Line 3 intersects

Line	$\ell_6$	$\ell_7$	$\ell_8$	$\ell_{10}$	$\ell_{11}$	$\ell_{14}$	$\ell_{18}$	$\ell_{21}$	$\ell_{24}$	$\ell_{25}$
in point	$P_{29}$	$P_{434}$	$P_{3250}$	$P_{3004}$	$P_{699}$	$P_{29}$	$P_{434}$	$P_{3250}$	$P_{3004}$	$P_{699}$

Line 4 intersects

Line	$\ell_6$	$\ell_7$	$\ell_8$	$\ell_9$	$\ell_{11}$	$\ell_{15}$	$\ell_{19}$	$\ell_{22}$	$\ell_{24}$	$\ell_{26}$
in point	$P_{2860}$	$P_{3260}$	$P_{195}$	$P_{285}$	$P_{716}$	$P_{2860}$	$P_{3260}$	$P_{195}$	$P_{285}$	$P_{716}$



Line 5 intersects

Line	$\ell_6$	$\ell_7$	$\ell_8$	$\ell_9$	$\ell_{10}$	$\ell_{16}$	$\ell_{20}$	$\ell_{23}$	$\ell_{25}$	$\ell_{26}$
in point	$P_{3106}$	$P_{690}$	$P_{275}$	$P_{179}$	$P_{3010}$	$P_{3106}$	$P_{690}$	$P_{275}$	$P_{179}$	$P_{3010}$

Line 6 intersects

Line	$\ell_1$	$\ell_2$	$\ell_3$	$\ell_4$	$\ell_5$	$\ell_{12}$	$\ell_{13}$	$\ell_{14}$	$\ell_{15}$	$\ell_{16}$
in point	$P_{555}$	$P_{290}$	$P_{29}$	$P_{2860}$	$P_{3106}$	$P_{555}$	$P_{290}$	$P_{29}$	$P_{2860}$	$P_{3106}$

Line 7 intersects

Line	$\ell_0$	$\ell_2$	$\ell_3$	$\ell_4$	$\ell_5$	$\ell_{12}$	$\ell_{17}$	$\ell_{18}$	$\ell_{19}$	$\ell_{20}$
in point	$P_{3003}$	$P_{20}$	$P_{434}$	$P_{3260}$	$P_{690}$	$P_{3003}$	$P_{20}$	$P_{434}$	$P_{3260}$	$P_{690}$

Line 8 intersects

Line	$\ell_0$	$\ell_1$	$\ell_3$	$\ell_4$	$\ell_5$	$\ell_{13}$	$\ell_{17}$	$\ell_{21}$	$\ell_{22}$	$\ell_{23}$
in point	$P_{2850}$	$P_{706}$	$P_{3250}$	$P_{195}$	$P_{275}$	$P_{2850}$	$P_{706}$	$P_{3250}$	$P_{195}$	$P_{275}$

Line 9 intersects

Line	$\ell_0$	$\ell_1$	$\ell_2$	$\ell_4$	$\ell_5$	$\ell_{14}$	$\ell_{18}$	$\ell_{21}$	$\ell_{24}$	$\ell_{25}$
in point	$P_{3020}$	$P_{700}$	$P_{3116}$	$P_{285}$	$P_{179}$	$P_{3020}$	$P_{700}$	$P_{3116}$	$P_{285}$	$P_{179}$

Line 10 intersects

Line	$\ell_0$	$\ell_1$	$\ell_2$	$\ell_3$	$\ell_5$	$\ell_{15}$	$\ell_{19}$	$\ell_{22}$	$\ell_{24}$	$\ell_{26}$
in point	$P_{2833}$	$P_{14}$	$P_{2859}$	$P_{3004}$	$P_{3010}$	$P_{2833}$	$P_{14}$	$P_{2859}$	$P_{3004}$	$P_{3010}$

Line 11 intersects

Line	$\ell_0$	$\ell_1$	$\ell_2$	$\ell_3$	$\ell_4$	$\ell_{16}$	$\ell_{20}$	$\ell_{23}$	$\ell_{25}$	$\ell_{26}$
in point	$P_5$	$P_{530}$	$P_4$	$P_{699}$	$P_{716}$	$P_5$	$P_{530}$	$P_4$	$P_{699}$	$P_{716}$

Line 12 intersects

Line	$\ell_0$	$\ell_1$	$\ell_6$	$\ell_7$	$\ell_{21}$	$\ell_{22}$	$\ell_{23}$	$\ell_{24}$	$\ell_{25}$	$\ell_{26}$
in point	$P_{3003}$	$P_{555}$	$P_{555}$	$P_{3003}$	$P_{3275}$	$P_{284}$	$P_{35}$	$P_{35}$	$P_{284}$	$P_{3275}$

Line 13 intersects

Line	$\ell_0$	$\ell_2$	$\ell_6$	$\ell_8$	$\ell_{18}$	$\ell_{19}$	$\ell_{20}$	$\ell_{24}$	$\ell_{25}$	$\ell_{26}$
in point	$P_{2850}$	$P_{290}$	$P_{290}$	$P_{2850}$	$P_{30}$	$P_{3115}$	$P_{556}$	$P_{556}$	$P_{3115}$	$P_{30}$

Line 14 intersects

Line	$\ell_0$	$\ell_3$	$\ell_6$	$\ell_9$	$\ell_{17}$	$\ell_{19}$	$\ell_{20}$	$\ell_{22}$	$\ell_{23}$	$\ell_{26}$
in point	$P_{3020}$	$P_{29}$	$P_{29}$	$P_{3020}$	$P_{450}$	$P_{3266}$	$P_{715}$	$P_{715}$	$P_{3266}$	$P_{450}$

Line 15 intersects

Line	$\ell_0$	$\ell_4$	$\ell_6$	$\ell_{10}$	$\ell_{17}$	$\ell_{18}$	$\ell_{20}$	$\ell_{21}$	$\ell_{23}$	$\ell_{25}$
in point	$P_{2833}$	$P_{2860}$	$P_{2860}$	$P_{2833}$	$P_{3019}$	$P_{2994}$	$P_{15}$	$P_{15}$	$P_{2994}$	$P_{3019}$

Line 16 intersects

Line	$\ell_0$	$\ell_5$	$\ell_6$	$\ell_{11}$	$\ell_{17}$	$\ell_{18}$	$\ell_{19}$	$\ell_{21}$	$\ell_{22}$	$\ell_{24}$
in point	$P_5$	$P_{3106}$	$P_{3106}$	$P_5$	$P_{3276}$	$P_{3259}$	$P_{3089}$	$P_{3089}$	$P_{3259}$	$P_{3276}$

Line 17 intersects

Line	$\ell_1$	$\ell_2$	$\ell_7$	$\ell_8$	$\ell_{14}$	$\ell_{15}$	$\ell_{16}$	$\ell_{24}$	$\ell_{25}$	$\ell_{26}$
in point	$P_{706}$	$P_{20}$	$P_{20}$	$P_{706}$	$P_{450}$	$P_{3019}$	$P_{3276}$	$P_{3276}$	$P_{3019}$	$P_{450}$

Line 18 intersects

Line	$\ell_1$	$\ell_3$	$\ell_7$	$\ell_9$	$\ell_{13}$	$\ell_{15}$	$\ell_{16}$	$\ell_{22}$	$\ell_{23}$	$\ell_{26}$
in point	$P_{700}$	$P_{434}$	$P_{434}$	$P_{700}$	$P_{30}$	$P_{2994}$	$P_{3259}$	$P_{3259}$	$P_{2994}$	$P_{30}$

Line 19 intersects

Line	$\ell_1$	$\ell_4$	$\ell_7$	$\ell_{10}$	$\ell_{13}$	$\ell_{14}$	$\ell_{16}$	$\ell_{21}$	$\ell_{23}$	$\ell_{25}$
in point	$P_{14}$	$P_{3260}$	$P_{3260}$	$P_{14}$	$P_{3115}$	$P_{3266}$	$P_{3089}$	$P_{3089}$	$P_{3266}$	$P_{3115}$

Line 20 intersects

Line	$\ell_1$	$\ell_5$	$\ell_7$	$\ell_{11}$	$\ell_{13}$	$\ell_{14}$	$\ell_{15}$	$\ell_{21}$	$\ell_{22}$	$\ell_{24}$
in point	$P_{530}$	$P_{690}$	$P_{690}$	$P_{530}$	$P_{556}$	$P_{715}$	$P_{15}$	$P_{15}$	$P_{715}$	$P_{556}$

Line 21 intersects

Line	$\ell_2$	$\ell_3$	$\ell_8$	$\ell_9$	$\ell_{12}$	$\ell_{15}$	$\ell_{16}$	$\ell_{19}$	$\ell_{20}$	$\ell_{26}$
in point	$P_{3116}$	$P_{3250}$	$P_{3250}$	$P_{3116}$	$P_{3275}$	$P_{15}$	$P_{3089}$	$P_{3089}$	$P_{15}$	$P_{3275}$

Line 22 intersects

Line	$\ell_2$	$\ell_4$	$\ell_8$	$\ell_{10}$	$\ell_{12}$	$\ell_{14}$	$\ell_{16}$	$\ell_{18}$	$\ell_{20}$	$\ell_{25}$
in point	$P_{2859}$	$P_{195}$	$P_{195}$	$P_{2859}$	$P_{284}$	$P_{715}$	$P_{3259}$	$P_{3259}$	$P_{715}$	$P_{284}$

Line 23 intersects

Line	$\ell_2$	$\ell_5$	$\ell_8$	$\ell_{11}$	$\ell_{12}$	$\ell_{14}$	$\ell_{15}$	$\ell_{18}$	$\ell_{19}$	$\ell_{24}$
in point	$P_4$	$P_{275}$	$P_{275}$	$P_4$	$P_{35}$	$P_{3266}$	$P_{2994}$	$P_{2994}$	$P_{3266}$	$P_{35}$

Line 24 intersects

Line	$\ell_3$	$\ell_4$	$\ell_9$	$\ell_{10}$	$\ell_{12}$	$\ell_{13}$	$\ell_{16}$	$\ell_{17}$	$\ell_{20}$	$\ell_{23}$
in point	$P_{3004}$	$P_{285}$	$P_{285}$	$P_{3004}$	$P_{35}$	$P_{556}$	$P_{3276}$	$P_{3276}$	$P_{556}$	$P_{35}$

Line 25 intersects

Line	$\ell_3$	$\ell_5$	$\ell_9$	$\ell_{11}$	$\ell_{12}$	$\ell_{13}$	$\ell_{15}$	$\ell_{17}$	$\ell_{19}$	$\ell_{22}$
in point	$P_{699}$	$P_{179}$	$P_{179}$	$P_{699}$	$P_{284}$	$P_{3115}$	$P_{3019}$	$P_{3019}$	$P_{3115}$	$P_{284}$

Line 26 intersects

Line	$\ell_4$	$\ell_5$	$\ell_{10}$	$\ell_{11}$	$\ell_{12}$	$\ell_{13}$	$\ell_{14}$	$\ell_{17}$	$\ell_{18}$	$\ell_{21}$
in point	$P_{716}$	$P_{3010}$	$P_{3010}$	$P_{716}$	$P_{3275}$	$P_{30}$	$P_{450}$	$P_{450}$	$P_{30}$	$P_{3275}$

The surface has 369 points:

The points on the surface are:

$$\begin{array}{lll}
0 : P_4 = (1, 1, 1, 1) & 9 : P_{195} = (0, 11, 1, 0) & 18 : P_{556} = (11, 1, 1, 1) \\
1 : P_5 = (1, 1, 0, 0) & 10 : P_{275} = (1, 0, 0, 1) & 19 : P_{563} = (2, 2, 1, 1) \\
2 : P_{14} = (10, 1, 0, 0) & 11 : P_{284} = (10, 0, 0, 1) & 20 : P_{574} = (13, 2, 1, 1) \\
3 : P_{15} = (11, 1, 0, 0) & 12 : P_{285} = (11, 0, 0, 1) & 21 : P_{576} = (15, 2, 1, 1) \\
4 : P_{20} = (1, 0, 1, 0) & 13 : P_{290} = (0, 1, 0, 1) & 22 : P_{580} = (3, 3, 1, 1) \\
5 : P_{29} = (10, 0, 1, 0) & 14 : P_{434} = (0, 10, 0, 1) & 23 : P_{581} = (4, 3, 1, 1) \\
6 : P_{30} = (11, 0, 1, 0) & 15 : P_{450} = (0, 11, 0, 1) & 24 : P_{584} = (7, 3, 1, 1) \\
7 : P_{35} = (0, 1, 1, 0) & 16 : P_{530} = (0, 0, 1, 1) & 25 : P_{596} = (3, 4, 1, 1) \\
8 : P_{179} = (0, 10, 1, 0) & 17 : P_{555} = (10, 1, 1, 1) & 26 : P_{597} = (4, 4, 1, 1)
\end{array}$$

27 : $P_{600} = (7, 4, 1, 1)$	81 : $P_{1064} = (7, 1, 3, 1)$	135 : $P_{1839} = (14, 1, 6, 1)$
28 : $P_{614} = (5, 5, 1, 1)$	82 : $P_{1090} = (1, 3, 3, 1)$	136 : $P_{1906} = (1, 6, 6, 1)$
29 : $P_{618} = (9, 5, 1, 1)$	83 : $P_{1099} = (10, 3, 3, 1)$	137 : $P_{1915} = (10, 6, 6, 1)$
30 : $P_{621} = (12, 5, 1, 1)$	84 : $P_{1100} = (11, 3, 3, 1)$	138 : $P_{1916} = (11, 6, 6, 1)$
31 : $P_{631} = (6, 6, 1, 1)$	85 : $P_{1106} = (1, 4, 3, 1)$	139 : $P_{1938} = (1, 8, 6, 1)$
32 : $P_{633} = (8, 6, 1, 1)$	86 : $P_{1115} = (10, 4, 3, 1)$	140 : $P_{1947} = (10, 8, 6, 1)$
33 : $P_{639} = (14, 6, 1, 1)$	87 : $P_{1116} = (11, 4, 3, 1)$	141 : $P_{1948} = (11, 8, 6, 1)$
34 : $P_{644} = (3, 7, 1, 1)$	88 : $P_{1154} = (1, 7, 3, 1)$	142 : $P_{1975} = (6, 10, 6, 1)$
35 : $P_{645} = (4, 7, 1, 1)$	89 : $P_{1163} = (10, 7, 3, 1)$	143 : $P_{1977} = (8, 10, 6, 1)$
36 : $P_{648} = (7, 7, 1, 1)$	90 : $P_{1164} = (11, 7, 3, 1)$	144 : $P_{1983} = (14, 10, 6, 1)$
37 : $P_{663} = (6, 8, 1, 1)$	91 : $P_{1204} = (3, 10, 3, 1)$	145 : $P_{1991} = (6, 11, 6, 1)$
38 : $P_{665} = (8, 8, 1, 1)$	92 : $P_{1205} = (4, 10, 3, 1)$	146 : $P_{1993} = (8, 11, 6, 1)$
39 : $P_{671} = (14, 8, 1, 1)$	93 : $P_{1208} = (7, 10, 3, 1)$	147 : $P_{1999} = (14, 11, 6, 1)$
40 : $P_{678} = (5, 9, 1, 1)$	94 : $P_{1220} = (3, 11, 3, 1)$	148 : $P_{2034} = (1, 14, 6, 1)$
41 : $P_{682} = (9, 9, 1, 1)$	95 : $P_{1221} = (4, 11, 3, 1)$	149 : $P_{2043} = (10, 14, 6, 1)$
42 : $P_{685} = (12, 9, 1, 1)$	96 : $P_{1224} = (7, 11, 3, 1)$	150 : $P_{2044} = (11, 14, 6, 1)$
43 : $P_{690} = (1, 10, 1, 1)$	97 : $P_{1316} = (3, 1, 4, 1)$	151 : $P_{2084} = (3, 1, 7, 1)$
44 : $P_{699} = (10, 10, 1, 1)$	98 : $P_{1317} = (4, 1, 4, 1)$	152 : $P_{2085} = (4, 1, 7, 1)$
45 : $P_{700} = (11, 10, 1, 1)$	99 : $P_{1320} = (7, 1, 4, 1)$	153 : $P_{2088} = (7, 1, 7, 1)$
46 : $P_{706} = (1, 11, 1, 1)$	100 : $P_{1346} = (1, 3, 4, 1)$	154 : $P_{2114} = (1, 3, 7, 1)$
47 : $P_{715} = (10, 11, 1, 1)$	101 : $P_{1355} = (10, 3, 4, 1)$	155 : $P_{2123} = (10, 3, 7, 1)$
48 : $P_{716} = (11, 11, 1, 1)$	102 : $P_{1356} = (11, 3, 4, 1)$	156 : $P_{2124} = (11, 3, 7, 1)$
49 : $P_{726} = (5, 12, 1, 1)$	103 : $P_{1362} = (1, 4, 4, 1)$	157 : $P_{2130} = (1, 4, 7, 1)$
50 : $P_{730} = (9, 12, 1, 1)$	104 : $P_{1371} = (10, 4, 4, 1)$	158 : $P_{2139} = (10, 4, 7, 1)$
51 : $P_{733} = (12, 12, 1, 1)$	105 : $P_{1372} = (11, 4, 4, 1)$	159 : $P_{2140} = (11, 4, 7, 1)$
52 : $P_{739} = (2, 13, 1, 1)$	106 : $P_{1410} = (1, 7, 4, 1)$	160 : $P_{2178} = (1, 7, 7, 1)$
53 : $P_{750} = (13, 13, 1, 1)$	107 : $P_{1419} = (10, 7, 4, 1)$	161 : $P_{2187} = (10, 7, 7, 1)$
54 : $P_{752} = (15, 13, 1, 1)$	108 : $P_{1420} = (11, 7, 4, 1)$	162 : $P_{2188} = (11, 7, 7, 1)$
55 : $P_{759} = (6, 14, 1, 1)$	109 : $P_{1460} = (3, 10, 4, 1)$	163 : $P_{2228} = (3, 10, 7, 1)$
56 : $P_{761} = (8, 14, 1, 1)$	110 : $P_{1461} = (4, 10, 4, 1)$	164 : $P_{2229} = (4, 10, 7, 1)$
57 : $P_{767} = (14, 14, 1, 1)$	111 : $P_{1464} = (7, 10, 4, 1)$	165 : $P_{2232} = (7, 10, 7, 1)$
58 : $P_{771} = (2, 15, 1, 1)$	112 : $P_{1476} = (3, 11, 4, 1)$	166 : $P_{2244} = (3, 11, 7, 1)$
59 : $P_{782} = (13, 15, 1, 1)$	113 : $P_{1477} = (4, 11, 4, 1)$	167 : $P_{2245} = (4, 11, 7, 1)$
60 : $P_{784} = (15, 15, 1, 1)$	114 : $P_{1480} = (7, 11, 4, 1)$	168 : $P_{2248} = (7, 11, 7, 1)$
61 : $P_{803} = (2, 1, 2, 1)$	115 : $P_{1574} = (5, 1, 5, 1)$	169 : $P_{2343} = (6, 1, 8, 1)$
62 : $P_{814} = (13, 1, 2, 1)$	116 : $P_{1578} = (9, 1, 5, 1)$	170 : $P_{2345} = (8, 1, 8, 1)$
63 : $P_{816} = (15, 1, 2, 1)$	117 : $P_{1581} = (12, 1, 5, 1)$	171 : $P_{2351} = (14, 1, 8, 1)$
64 : $P_{818} = (1, 2, 2, 1)$	118 : $P_{1634} = (1, 5, 5, 1)$	172 : $P_{2418} = (1, 6, 8, 1)$
65 : $P_{827} = (10, 2, 2, 1)$	119 : $P_{1643} = (10, 5, 5, 1)$	173 : $P_{2427} = (10, 6, 8, 1)$
66 : $P_{828} = (11, 2, 2, 1)$	120 : $P_{1644} = (11, 5, 5, 1)$	174 : $P_{2428} = (11, 6, 8, 1)$
67 : $P_{947} = (2, 10, 2, 1)$	121 : $P_{1698} = (1, 9, 5, 1)$	175 : $P_{2450} = (1, 8, 8, 1)$
68 : $P_{958} = (13, 10, 2, 1)$	122 : $P_{1707} = (10, 9, 5, 1)$	176 : $P_{2459} = (10, 8, 8, 1)$
69 : $P_{960} = (15, 10, 2, 1)$	123 : $P_{1708} = (11, 9, 5, 1)$	177 : $P_{2460} = (11, 8, 8, 1)$
70 : $P_{963} = (2, 11, 2, 1)$	124 : $P_{1718} = (5, 10, 5, 1)$	178 : $P_{2487} = (6, 10, 8, 1)$
71 : $P_{974} = (13, 11, 2, 1)$	125 : $P_{1722} = (9, 10, 5, 1)$	179 : $P_{2489} = (8, 10, 8, 1)$
72 : $P_{976} = (15, 11, 2, 1)$	126 : $P_{1725} = (12, 10, 5, 1)$	180 : $P_{2495} = (14, 10, 8, 1)$
73 : $P_{994} = (1, 13, 2, 1)$	127 : $P_{1734} = (5, 11, 5, 1)$	181 : $P_{2503} = (6, 11, 8, 1)$
74 : $P_{1003} = (10, 13, 2, 1)$	128 : $P_{1738} = (9, 11, 5, 1)$	182 : $P_{2505} = (8, 11, 8, 1)$
75 : $P_{1004} = (11, 13, 2, 1)$	129 : $P_{1741} = (12, 11, 5, 1)$	183 : $P_{2511} = (14, 11, 8, 1)$
76 : $P_{1026} = (1, 15, 2, 1)$	130 : $P_{1746} = (1, 12, 5, 1)$	184 : $P_{2546} = (1, 14, 8, 1)$
77 : $P_{1035} = (10, 15, 2, 1)$	131 : $P_{1755} = (10, 12, 5, 1)$	185 : $P_{2555} = (10, 14, 8, 1)$
78 : $P_{1036} = (11, 15, 2, 1)$	132 : $P_{1756} = (11, 12, 5, 1)$	186 : $P_{2556} = (11, 14, 8, 1)$
79 : $P_{1060} = (3, 1, 3, 1)$	133 : $P_{1831} = (6, 1, 6, 1)$	187 : $P_{2598} = (5, 1, 9, 1)$
80 : $P_{1061} = (4, 1, 3, 1)$	134 : $P_{1833} = (8, 1, 6, 1)$	188 : $P_{2602} = (9, 1, 9, 1)$

189 : $P_{2605} = (12, 1, 9, 1)$	243 : $P_{3054} = (13, 13, 10, 1)$	297 : $P_{3366} = (5, 1, 12, 1)$
190 : $P_{2658} = (1, 5, 9, 1)$	244 : $P_{3056} = (15, 13, 10, 1)$	298 : $P_{3370} = (9, 1, 12, 1)$
191 : $P_{2667} = (10, 5, 9, 1)$	245 : $P_{3063} = (6, 14, 10, 1)$	299 : $P_{3373} = (12, 1, 12, 1)$
192 : $P_{2668} = (11, 5, 9, 1)$	246 : $P_{3065} = (8, 14, 10, 1)$	300 : $P_{3426} = (1, 5, 12, 1)$
193 : $P_{2722} = (1, 9, 9, 1)$	247 : $P_{3071} = (14, 14, 10, 1)$	301 : $P_{3435} = (10, 5, 12, 1)$
194 : $P_{2731} = (10, 9, 9, 1)$	248 : $P_{3075} = (2, 15, 10, 1)$	302 : $P_{3436} = (11, 5, 12, 1)$
195 : $P_{2732} = (11, 9, 9, 1)$	249 : $P_{3086} = (13, 15, 10, 1)$	303 : $P_{3490} = (1, 9, 12, 1)$
196 : $P_{2742} = (5, 10, 9, 1)$	250 : $P_{3088} = (15, 15, 10, 1)$	304 : $P_{3499} = (10, 9, 12, 1)$
197 : $P_{2746} = (9, 10, 9, 1)$	251 : $P_{3089} = (0, 0, 11, 1)$	305 : $P_{3500} = (11, 9, 12, 1)$
198 : $P_{2749} = (12, 10, 9, 1)$	252 : $P_{3106} = (1, 1, 11, 1)$	306 : $P_{3510} = (5, 10, 12, 1)$
199 : $P_{2758} = (5, 11, 9, 1)$	253 : $P_{3115} = (10, 1, 11, 1)$	307 : $P_{3514} = (9, 10, 12, 1)$
200 : $P_{2762} = (9, 11, 9, 1)$	254 : $P_{3116} = (11, 1, 11, 1)$	308 : $P_{3517} = (12, 10, 12, 1)$
201 : $P_{2765} = (12, 11, 9, 1)$	255 : $P_{3123} = (2, 2, 11, 1)$	309 : $P_{3526} = (5, 11, 12, 1)$
202 : $P_{2770} = (1, 12, 9, 1)$	256 : $P_{3134} = (13, 2, 11, 1)$	310 : $P_{3530} = (9, 11, 12, 1)$
203 : $P_{2779} = (10, 12, 9, 1)$	257 : $P_{3136} = (15, 2, 11, 1)$	311 : $P_{3533} = (12, 11, 12, 1)$
204 : $P_{2780} = (11, 12, 9, 1)$	258 : $P_{3140} = (3, 3, 11, 1)$	312 : $P_{3538} = (1, 12, 12, 1)$
205 : $P_{2833} = (0, 0, 10, 1)$	259 : $P_{3141} = (4, 3, 11, 1)$	313 : $P_{3547} = (10, 12, 12, 1)$
206 : $P_{2850} = (1, 1, 10, 1)$	260 : $P_{3144} = (7, 3, 11, 1)$	314 : $P_{3548} = (11, 12, 12, 1)$
207 : $P_{2859} = (10, 1, 10, 1)$	261 : $P_{3156} = (3, 4, 11, 1)$	315 : $P_{3619} = (2, 1, 13, 1)$
208 : $P_{2860} = (11, 1, 10, 1)$	262 : $P_{3157} = (4, 4, 11, 1)$	316 : $P_{3630} = (13, 1, 13, 1)$
209 : $P_{2867} = (2, 2, 10, 1)$	263 : $P_{3160} = (7, 4, 11, 1)$	317 : $P_{3632} = (15, 1, 13, 1)$
210 : $P_{2878} = (13, 2, 10, 1)$	264 : $P_{3174} = (5, 5, 11, 1)$	318 : $P_{3634} = (1, 2, 13, 1)$
211 : $P_{2880} = (15, 2, 10, 1)$	265 : $P_{3178} = (9, 5, 11, 1)$	319 : $P_{3643} = (10, 2, 13, 1)$
212 : $P_{2884} = (3, 3, 10, 1)$	266 : $P_{3181} = (12, 5, 11, 1)$	320 : $P_{3644} = (11, 2, 13, 1)$
213 : $P_{2885} = (4, 3, 10, 1)$	267 : $P_{3191} = (6, 6, 11, 1)$	321 : $P_{3763} = (2, 10, 13, 1)$
214 : $P_{2888} = (7, 3, 10, 1)$	268 : $P_{3193} = (8, 6, 11, 1)$	322 : $P_{3774} = (13, 10, 13, 1)$
215 : $P_{2900} = (3, 4, 10, 1)$	269 : $P_{3199} = (14, 6, 11, 1)$	323 : $P_{3776} = (15, 10, 13, 1)$
216 : $P_{2901} = (4, 4, 10, 1)$	270 : $P_{3204} = (3, 7, 11, 1)$	324 : $P_{3779} = (2, 11, 13, 1)$
217 : $P_{2904} = (7, 4, 10, 1)$	271 : $P_{3205} = (4, 7, 11, 1)$	325 : $P_{3790} = (13, 11, 13, 1)$
218 : $P_{2918} = (5, 5, 10, 1)$	272 : $P_{3208} = (7, 7, 11, 1)$	326 : $P_{3792} = (15, 11, 13, 1)$
219 : $P_{2922} = (9, 5, 10, 1)$	273 : $P_{3223} = (6, 8, 11, 1)$	327 : $P_{3810} = (1, 13, 13, 1)$
220 : $P_{2925} = (12, 5, 10, 1)$	274 : $P_{3225} = (8, 8, 11, 1)$	328 : $P_{3819} = (10, 13, 13, 1)$
221 : $P_{2935} = (6, 6, 10, 1)$	275 : $P_{3231} = (14, 8, 11, 1)$	329 : $P_{3820} = (11, 13, 13, 1)$
222 : $P_{2937} = (8, 6, 10, 1)$	276 : $P_{3238} = (5, 9, 11, 1)$	330 : $P_{3842} = (1, 15, 13, 1)$
223 : $P_{2943} = (14, 6, 10, 1)$	277 : $P_{3242} = (9, 9, 11, 1)$	331 : $P_{3851} = (10, 15, 13, 1)$
224 : $P_{2948} = (3, 7, 10, 1)$	278 : $P_{3245} = (12, 9, 11, 1)$	332 : $P_{3852} = (11, 15, 13, 1)$
225 : $P_{2949} = (4, 7, 10, 1)$	279 : $P_{3250} = (1, 10, 11, 1)$	333 : $P_{3879} = (6, 1, 14, 1)$
226 : $P_{2952} = (7, 7, 10, 1)$	280 : $P_{3259} = (10, 10, 11, 1)$	334 : $P_{3881} = (8, 1, 14, 1)$
227 : $P_{2967} = (6, 8, 10, 1)$	281 : $P_{3260} = (11, 10, 11, 1)$	335 : $P_{3887} = (14, 1, 14, 1)$
228 : $P_{2969} = (8, 8, 10, 1)$	282 : $P_{3266} = (1, 11, 11, 1)$	336 : $P_{3954} = (1, 6, 14, 1)$
229 : $P_{2975} = (14, 8, 10, 1)$	283 : $P_{3275} = (10, 11, 11, 1)$	337 : $P_{3963} = (10, 6, 14, 1)$
230 : $P_{2982} = (5, 9, 10, 1)$	284 : $P_{3276} = (11, 11, 11, 1)$	338 : $P_{3964} = (11, 6, 14, 1)$
231 : $P_{2986} = (9, 9, 10, 1)$	285 : $P_{3286} = (5, 12, 11, 1)$	339 : $P_{3986} = (1, 8, 14, 1)$
232 : $P_{2989} = (12, 9, 10, 1)$	286 : $P_{3290} = (9, 12, 11, 1)$	340 : $P_{3995} = (10, 8, 14, 1)$
233 : $P_{2994} = (1, 10, 10, 1)$	287 : $P_{3293} = (12, 12, 11, 1)$	341 : $P_{3996} = (11, 8, 14, 1)$
234 : $P_{3003} = (10, 10, 10, 1)$	288 : $P_{3299} = (2, 13, 11, 1)$	342 : $P_{4023} = (6, 10, 14, 1)$
235 : $P_{3004} = (11, 10, 10, 1)$	289 : $P_{3310} = (13, 13, 11, 1)$	343 : $P_{4025} = (8, 10, 14, 1)$
236 : $P_{3010} = (1, 11, 10, 1)$	290 : $P_{3312} = (15, 13, 11, 1)$	344 : $P_{4031} = (14, 10, 14, 1)$
237 : $P_{3019} = (10, 11, 10, 1)$	291 : $P_{3319} = (6, 14, 11, 1)$	345 : $P_{4039} = (6, 11, 14, 1)$
238 : $P_{3020} = (11, 11, 10, 1)$	292 : $P_{3321} = (8, 14, 11, 1)$	346 : $P_{4041} = (8, 11, 14, 1)$
239 : $P_{3030} = (5, 12, 10, 1)$	293 : $P_{3327} = (14, 14, 11, 1)$	347 : $P_{4047} = (14, 11, 14, 1)$
240 : $P_{3034} = (9, 12, 10, 1)$	294 : $P_{3331} = (2, 15, 11, 1)$	348 : $P_{4082} = (1, 14, 14, 1)$
241 : $P_{3037} = (12, 12, 10, 1)$	295 : $P_{3342} = (13, 15, 11, 1)$	349 : $P_{4091} = (10, 14, 14, 1)$
242 : $P_{3043} = (2, 13, 10, 1)$	296 : $P_{3344} = (15, 15, 11, 1)$	350 : $P_{4092} = (11, 14, 14, 1)$

351 : $P_{4131} = (2, 1, 15, 1)$	358 : $P_{4286} = (13, 10, 15, 1)$	365 : $P_{4332} = (11, 13, 15, 1)$
352 : $P_{4142} = (13, 1, 15, 1)$	359 : $P_{4288} = (15, 10, 15, 1)$	366 : $P_{4354} = (1, 15, 15, 1)$
353 : $P_{4144} = (15, 1, 15, 1)$	360 : $P_{4291} = (2, 11, 15, 1)$	367 : $P_{4363} = (10, 15, 15, 1)$
354 : $P_{4146} = (1, 2, 15, 1)$	361 : $P_{4302} = (13, 11, 15, 1)$	368 : $P_{4364} = (11, 15, 15, 1)$
355 : $P_{4155} = (10, 2, 15, 1)$	362 : $P_{4304} = (15, 11, 15, 1)$	
356 : $P_{4156} = (11, 2, 15, 1)$	363 : $P_{4322} = (1, 13, 15, 1)$	
357 : $P_{4275} = (2, 10, 15, 1)$	364 : $P_{4331} = (10, 13, 15, 1)$	