$x = -21t + -1s + 10$

$y = 1t + -23s + 12$

$z = 23t + 3s + -13$

$x = -21t - 1s + 10$

$y = t - 23s + 12$

$z = 23t + 3s - 13$

$\vec{u} = (-21, 1, 23)$ $\vec{v} = (-1, -23, 3)$

Producto vectorial

$\vec{u} = (u_1, u_2, u_3)$ y $\vec{v} = (v_1, v_2, v_3)$

el producto cruz

$\vec{u} \times \vec{v} = \vec{u} = (u_1, u_2, u_3) \times \vec{v} = (v_1, v_2, v_3)$

$$\vec{u} \times \vec{v} = \left(\begin{vmatrix} u_2 & u_3 \\ v_2 & v_3 \end{vmatrix}, - \begin{vmatrix} u_1 & u_3 \\ v_1 & v_3 \end{vmatrix}, \begin{vmatrix} u_1 & u_2 \\ v_1 & v_2 \end{vmatrix} \right)$$

$$\vec{u} \times \vec{v} = \left(\begin{vmatrix} 1 & 23 \\ -23 & 3 \end{vmatrix}, - \begin{vmatrix} -21 & 23 \\ -1 & 3 \end{vmatrix}, \begin{vmatrix} -21 & 1 \\ -1 & -23 \end{vmatrix} \right)$$

$= (1 \cdot 3 - -23 \cdot 23), -(-21 \cdot 3 - -1 \cdot 23)$

$, (-21 \cdot -23 - -1 \cdot 1)$

$= (3 - -529), -(-63 - -23), (483 - -7)$

$= (532), -(-40), (484)$

$= (532, 40, 484)$

$$\vec{n} \cdot (X - A) = 0$$

$$(n_1, n_2, n_3) \cdot ((x, y, z) - (\alpha_1, \alpha_2, \alpha_3)) = 0$$

$$(n_1, n_2, n_3) \cdot (x - \alpha_1, y - \alpha_2, z - \alpha_3)$$

$$n_1(x - \alpha_1) + n_2(y - \alpha_2) + n_3(z - \alpha_3) = 0$$

$$n_1 x - n_1\alpha_1 + n_2 y - n_2\alpha_2 + n_3 z - n_3\alpha_3 = 0$$

$$n_1 x + n_2 y + n_3 z = n_1\alpha_1 + n_2\alpha_2 + n_3\alpha_3$$

$$532x + 40y + 484z = 532 \cdot 10 + 40 \cdot 12 + 484 \cdot -13$$

$$532x + 40y + 484z = 5320 + 480 + -6292$$

$$532x + 40y + 484z = -492$$