

Tatiana Tolosa Santamaria Cod:6000395

- Rotar todos los puntos ( $10 \times 3 = 30$ ) grados con respecto al origen, alrededor del eje Y.

$$R_{xz} \theta = \begin{vmatrix} \cos(30) & 0 & \sin(30) & 0 \\ 0 & 1 & 0 & 0 \\ -\sin(30) & 0 & \cos(30) & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix} = \begin{vmatrix} \sqrt{3}/2 & 0 & 1/2 & 0 \\ 0 & 1 & 0 & 1 \\ -1/2 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \end{vmatrix}$$

$$P1 = \begin{vmatrix} 10 \\ 10 \\ 0 \\ 1 \end{vmatrix} \begin{vmatrix} \sqrt{3}/2 & 0 & 1/2 & 0 \\ 0 & 1 & 0 & 1 \\ -1/2 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix} = \begin{vmatrix} 5\sqrt{3} \\ 10 \\ 0 \\ 1 \end{vmatrix}$$

$$P2 = \begin{vmatrix} 40 \\ 10 \\ 0 \\ 1 \end{vmatrix} \begin{vmatrix} \sqrt{3}/2 & 0 & 1/2 & 0 \\ 0 & 1 & 0 & 1 \\ -1/2 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix} = \begin{vmatrix} 20\sqrt{3} \\ 10 \\ 0 \\ 1 \end{vmatrix}$$

$$P3 = \begin{vmatrix} 40 \\ 40 \\ 0 \\ 1 \end{vmatrix} \begin{vmatrix} \sqrt{3}/2 & 0 & 1/2 & 0 \\ 0 & 1 & 0 & 1 \\ -1/2 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix} = \begin{vmatrix} 20\sqrt{3} \\ 40 \\ 0 \\ 1 \end{vmatrix}$$

$$P4 = \begin{vmatrix} 10 \\ 40 \\ 0 \\ 1 \end{vmatrix} \begin{vmatrix} \sqrt{3}/2 & 0 & 1/2 & 0 \\ 0 & 1 & 0 & 1 \\ -1/2 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix} = \begin{vmatrix} 5\sqrt{3} \\ 40 \\ 0 \\ 1 \end{vmatrix}$$

- Trasladar 1 unidad en z

$$P1 = \begin{array}{c|cccc|c} 5\sqrt{3} & 1 & 0 & 0 & 0 & 5\sqrt{3} \\ 10 & 0 & 1 & 0 & 0 & 10 \\ 0 & 0 & 0 & 1 & 1 & 1 \\ 1 & 0 & 0 & 0 & 1 & 1 \end{array}$$

$$P2 = \begin{array}{c|cccc|c} 20\sqrt{3} & 1 & 0 & 0 & 0 & 20\sqrt{3} \\ 10 & 0 & 1 & 0 & 0 & 10 \\ 0 & 0 & 0 & 1 & 1 & 1 \\ 1 & 0 & 0 & 0 & 1 & 1 \end{array}$$

$$P3 = \begin{array}{c|cccc|c} 20\sqrt{3} & 1 & 0 & 0 & 0 & 20\sqrt{3} \\ 10 & 0 & 1 & 0 & 0 & 10 \\ 0 & 0 & 0 & 1 & 1 & 1 \\ 1 & 0 & 0 & 0 & 1 & 1 \end{array}$$

$$P4 = \begin{array}{c|cccc|c} 5\sqrt{3} & 1 & 0 & 0 & 0 & 5\sqrt{3} \\ 40 & 0 & 1 & 0 & 0 & 40 \\ 0 & 0 & 0 & 1 & 1 & 1 \\ 1 & 0 & 0 & 0 & 1 & 1 \end{array}$$

- Escalar 5 unidades en x

$$P1 = \begin{vmatrix} 5\sqrt{3} \\ 10 \\ 1 \\ 1 \end{vmatrix} \begin{vmatrix} 5 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix} = \begin{vmatrix} 25\sqrt{3} \\ 10 \\ 1 \\ 1 \end{vmatrix}$$

$$P2 = \begin{vmatrix} 20\sqrt{3} \\ 10 \\ 1 \\ 1 \end{vmatrix} \begin{vmatrix} 5 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix} = \begin{vmatrix} 173.2 \\ 10 \\ 1 \\ 1 \end{vmatrix}$$

$$P2 = \begin{vmatrix} 20\sqrt{3} \\ 10 \\ 1 \\ 1 \end{vmatrix} \begin{vmatrix} 5 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix} = \begin{vmatrix} 17.32 \\ 40 \\ 1 \\ 1 \end{vmatrix}$$

$$P2 = \begin{vmatrix} 5\sqrt{3} \\ 10 \\ 1 \\ 1 \end{vmatrix} \begin{vmatrix} 5 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix} = \begin{vmatrix} 25\sqrt{3} \\ 40 \\ 1 \\ 1 \end{vmatrix}$$