Parcial Computación Grafica 2020-2

$P_1 = (10,10,0)$, $\quad P_2 = (40,10,0)$, $\quad P_3 = (40,40,0)$, $\quad P_4 = (10,40,0)$

$$a = 1 \qquad b = 8 \qquad c = 0$$

$$R_{P_1} = \begin{bmatrix} \cos(10) & 0 & \sen(10) \\ 0 & 1 & 0 \\ -\sen(10) & 0 & \cos(10) \end{bmatrix} \begin{bmatrix} 10 \\ 10 \\ 0 \end{bmatrix} = \begin{bmatrix} 10.021 \\ 10 \\ -0.751 \end{bmatrix}$$

$$R_{P_2} = \begin{bmatrix} \cos(10) & 0 & \sen(10) \\ 0 & 1 & 0 \\ -\sen(10) & 0 & \cos(10) \end{bmatrix} \begin{bmatrix} 40 \\ 10 \\ 0 \end{bmatrix} = \begin{bmatrix} 39.56 \\ 10 \\ -5.961 \end{bmatrix}$$

$$R_{P_3} = \begin{bmatrix} \cos(10) & 0 & \sen(10) \\ 0 & 1 & 0 \\ -\sen(10) & 0 & \cos(10) \end{bmatrix} \begin{bmatrix} 40 \\ 40 \\ 0 \end{bmatrix} = \begin{bmatrix} 39.565 \\ 40 \\ -5.961 \end{bmatrix}$$

$$R_{P_4} = \begin{bmatrix} \cos(10) & 0 & \sen(10) \\ 0 & 1 & 0 \\ -\sen(10) & 0 & \cos(10) \end{bmatrix} \begin{bmatrix} 10 \\ 40 \\ 0 \end{bmatrix} = \begin{bmatrix} 10.021 \\ 40 \\ -0.751 \end{bmatrix}$$

$P_1 = (10.021, 10, -0.751)$, $\quad P_2 = (39.56, 10, -5.961)$

$P_3 = (39.565, 40, -5.961)$, $\quad P_4 = (10.012, 40, -0.751)$

$$T_{p1} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 2 \\ 0 & 0 & 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} 10.021 \\ 10 \\ -0.751 \\ 1 \end{bmatrix} = \begin{bmatrix} 10.021 \\ 10 \\ 1.249 \\ 1 \end{bmatrix}$$

$$T_{p2} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 2 \\ 0 & 0 & 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} 39.56 \\ 10 \\ -5.961 \\ 1 \end{bmatrix} = \begin{bmatrix} 39.56 \\ 10 \\ -3.961 \\ 1 \end{bmatrix}$$

$$T_{p3} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & 2 \\ 0 & 0 & 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} 39.565 \\ 40 \\ -5.961 \\ 1 \end{bmatrix} = \begin{bmatrix} 39.565 \\ 40 \\ -3.961 \\ 1 \end{bmatrix}$$

$$T_{p4} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 2 \\ 0 & 0 & 1 & 1 \end{bmatrix} \cdot \begin{bmatrix} 10.012 \\ 40 \\ -0.759 \\ 1 \end{bmatrix} = \begin{bmatrix} 10.012 \\ 40 \\ 1.241 \\ 11 \end{bmatrix}$$

$P_1 = (10.021, 10, 1.249, 1)$ $P_2 = (39.56, 10, -3.961, 1)$

$P_3 = (39.565, 40, -3.961, 1)$ $P_4 = (10.012, 40, 1.241, 1)$

$$S_{p1} = \begin{bmatrix} 10 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} 10.021 \\ 10 \\ 1.249 \\ 1 \end{bmatrix} = \begin{bmatrix} 0 \\ 10 \\ 3.249 \\ 1 \end{bmatrix}$$

$$S_{p2} = \begin{bmatrix} 10 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} 39.56 \\ 10 \\ -3.961 \\ 1 \end{bmatrix} = \begin{bmatrix} 0 \\ 10 \\ -1.961 \\ 1 \end{bmatrix}$$

$$S_{p3} = \begin{bmatrix} 10 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} 39.565 \\ 40 \\ -3.961 \\ 1 \end{bmatrix} = \begin{bmatrix} 0 \\ 40 \\ -1.961 \\ 1 \end{bmatrix}$$

$$S_{p4} = \begin{bmatrix} 10 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} 10.012 \\ 40 \\ 1.241 \\ 1 \end{bmatrix} = \begin{bmatrix} 0 \\ 40 \\ 3.241 \\ 1 \end{bmatrix}$$