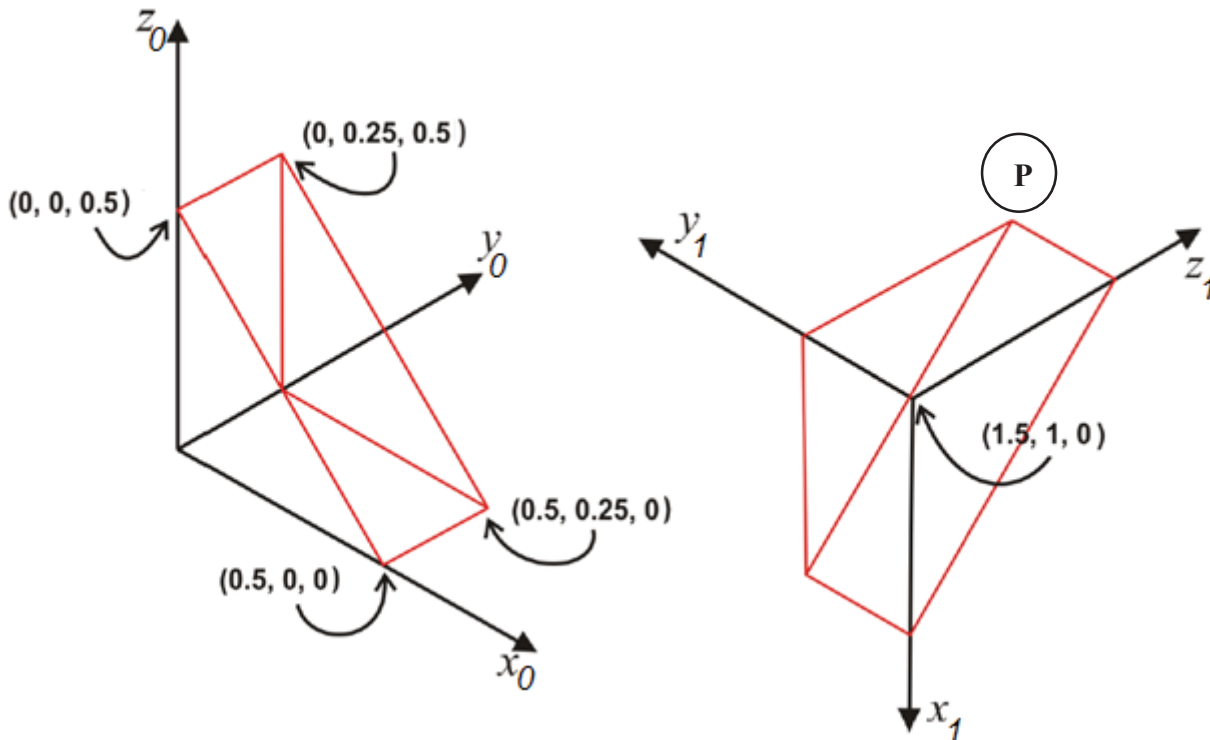[2] Consider the wedge-shaped object in the following drawing,

a) Obtain the transformation that should be applied to take it from the origin (left) to its final location (right).

b) Compute the coordinates of the point P of the translated and rotated wedge with respect to the original frame.

$$T_1^0 = \begin{bmatrix} 0 & -1 & 0 & 1.5 \\ 0 & 0 & 1 & 1 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$P^0 = T_1^0 \, P^1$$

$$P^0 = \begin{bmatrix} 0 & -1 & 0 & 1.5 \\ 0 & 0 & 1 & 1 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} * \begin{bmatrix} 0 \\ 0.25 \\ 0.5 \\ 1 \end{bmatrix}$$

$$P^0 = \begin{bmatrix} 1.25 \\ 1.5 \\ 0 \\ 1 \end{bmatrix}$$

With my best wishes, Dr. Haitham El-Hussieny