$$Q = \begin{bmatrix} 2/3 & 1/3 & 2/3 \\ 1/3 & 2/3 & -2/3 \\ -2/3 & 2/3 & 1/3 \end{bmatrix}$$

Una matriz Q de $n \times n$ es ortogonal si Q es invertible y

$$Q^{-1} = Q^T$$

$$\left[\begin{array}{ccc|ccc} 2/3 & 1/3 & 2/3 & 1 & 0 & 0 \\ 1/3 & 2/3 & +2/3 & 0 & 1 & 0 \\ +1/3 & 2/3 & 1/3 & 0 & 0 & 1 \end{array}\right] \rightarrow \left[\begin{array}{ccc|ccc} 2/3 & \frac{1}{3} & \frac{2}{3} & 1 & 0 & 0 \\ 1 & 0 & 2 & 2 & -1 & 0 \\ -5/3 & 0 & -1 & -2 & 0 & 1 \end{array}\right]$$

$$\left[\begin{array}{ccc|ccc} 0 & \frac{1}{3} & 0 & \frac{1}{21} & 4/21 & 2/7 \\ 1 & 0 & 0 & 6/7 & 3/7 & -6/7 \\ 0 & 0 & 1 & 4/7 & -5/7 & 3/7 \end{array}\right]$$

$$\rightarrow \left[\begin{array}{ccc|ccc} 1 & 0 & 0 & 6/7 & 3/7 & -6/7 \\ 0 & 1 & 0 & 1/7 & 4/7 & 6/7 \\ 0 & 0 & 1 & 4/7 & -5/7 & 3/7 \end{array}\right]$$

$$Q^{-1} = \begin{bmatrix} 6/7 & 3/7 & -6/7 \\ 1/7 & 4/7 & 6/7 \\ 4/7 & -5/7 & 3/7 \end{bmatrix}$$

$$Q^T = \begin{bmatrix} 2/3 & 1/3 & -1/3 \\ 1/3 & 2/3 & 2/3 \\ -2/3 & -2/3 & 1/3 \end{bmatrix}$$

$$Q^{-1} \neq Q^T$$

No es ortogonal