$$A = \begin{pmatrix} 1 & 2 & -1 \\ 0 & 3 & -2 \\ 2 & -1 & 1 \end{pmatrix} \tag{1}$$

consideramos la matriz ampliada

$$\left(\begin{array}{ccc|ccc} 1 & 2 & -1 & 1 & 0 & 0 \\ 0 & 3 & -2 & 0 & 1 & 0 \\ 2 & -1 & 1 & 0 & 0 & 1 \end{array}\right) \to \left(\begin{array}{ccc|ccc} 1 & 2 & -1 & 1 & 0 & 0 \\ 0 & 3 & -2 & 0 & 1 & 0 \\ 0 & -5 & 3 & -2 & 0 & 1 \end{array}\right) \tag{2}$$

$$\to \left(\begin{array}{ccc|ccc} 1 & 2 & -1 & 1 & 0 & 0 \\ 0 & 1 & -2/3 & 0 & 1/3 & 0 \\ 0 & -5 & 3 & -2 & 0 & 1 \end{array}\right) \tag{3}$$

$$\to \left(\begin{array}{ccc|ccc} 1 & 2 & -1 & 1 & 0 & 0 \\ 0 & 1 & -2/3 & 0 & 1/3 & 0 \\ 0 & 0 & (9-10)/3 & -2 & 5/3 & 1 \end{array}\right) \tag{4}$$

$$\to \left(\begin{array}{ccc|ccc} 1 & 2 & -1 & 1 & 0 & 0 \\ 0 & 1 & -2/3 & 0 & 1/3 & 0 \\ 0 & 0 & -1/3 & -2 & 5/3 & 1 \end{array}\right) \tag{5}$$

$$\to \left(\begin{array}{ccc|ccc} 1 & 0 & 1/3 & 1 & -2/3 & 0 \\ 0 & 1 & -2/3 & 0 & 1/3 & 0 \\ 0 & 0 & -1/3 & -2 & 5/3 & 1 \end{array}\right) \tag{6}$$

$$\to \left(\begin{array}{ccc|ccc} 1 & 0 & 0 & -1 & 1 & 1 \\ 0 & 1 & -2/3 & 0 & 1/3 & 0 \\ 0 & 0 & -1/3 & -2 & 5/3 & 1 \end{array}\right) \tag{7}$$

$$\to \left(\begin{array}{ccc|ccc} 1 & 0 & 0 & -1 & 1 & 1 \\ 0 & 1 & 0 & 4 & -3 & -2 \\ 0 & 0 & -1/3 & -2 & 5/3 & 1 \end{array}\right) \tag{8}$$

$$\to \left(\begin{array}{ccc|ccc} 1 & 0 & 0 & -1 & 1 & 1 \\ 0 & 1 & 0 & 4 & -3 & -2 \\ 0 & 0 & 1 & 6 & -5 & -3 \end{array}\right) \tag{9}$$

luego

$$A^{-1} = \begin{pmatrix} -1 & 1 & 1 \\ 4 & -3 & -2 \\ 6 & -5 & -3 \end{pmatrix} \tag{10}$$