1. En el siguiente sistema de ecuaciones aplicando regla de Cramer, determine **Δ y x.**

$$\begin{array}{rrrrcl} & -x & +2z & +2w & = & 1 \\ & 2x & -3z & -3w & = & 0 \\ & -x & -3z & +2w & = & 0 \\ -2x & -y & +2z & +w & = & 0 \end{array}$$

$$\Delta=\begin{vmatrix} -1 & 0 & 2 & \\ 2 & 0 & -3 & -3 \\ -1 & & -3 & 2 \\ -2 & -1 & & \end{vmatrix} R_2 \to R_2 = R_4 \begin{vmatrix} -1 & 0 & 2 & 2 \\ -2 & -1 & & \\ -1 & 0 & -3 & 2 \\ 2 & & & \end{vmatrix} \begin{array}{c} R_2 \to R_2 - 2R_1 \\ R_3 \to R_3 - R_1 \\ R_4 \to R_4 + 2R_1 \end{array} \begin{vmatrix} -1 & 0 & 2 & 2 \\ 0 & & -2 & \\ 0 & & -5 & \\ & & 1 & 1 \end{vmatrix} R_3 \to R_4$$

$$\begin{vmatrix} -1 & 0 & 2 & \\ 0 & -1 & -2 & -3 \\ 0 & & 1 & \\ 0 & & -5 & 0 \end{vmatrix} R_4 \to R_4 + 5R_3 \begin{vmatrix} -1 & 0 & 2 & \\ 0 & & -2 & -3 \\ 0 & & 1 & \\ 0 & & & \end{vmatrix} = (-1)(\quad)(1)(\quad) =$$

$$x = \frac{\begin{vmatrix} 1 & 0 & 2 & \\ & 0 & -3 & -3 \\ & 0 & -3 & 2 \\ & -1 & & \end{vmatrix}}{} R_2 \to R_4 \frac{\begin{vmatrix} -1 & 0 & 2 & \\ & -1 & 2 & \\ 0 & & -3 & 2 \\ 0 & & -3 & \end{vmatrix}}{} R_4 \to R_4 - R_3 \frac{\begin{vmatrix} -1 & 0 & 2 & \\ & -1 & 2 & \\ 0 & & & 2 \\ 0 & & 0 & \end{vmatrix}}{} = \frac{\quad}{\quad} =$$

2. Determina la magnitud y la dirección del vector $\boldsymbol{v} = (\mathbf{2}, \mathbf{2}\sqrt{\mathbf{3}})$

$$|v| = \sqrt{(\quad)^2 + \left(\quad\sqrt{\quad}\right)^2} = \sqrt{\quad + 4(\quad)} = \sqrt{\quad + \quad} = \sqrt{\quad} =$$

$$\theta = \tan^{-1}\left(\frac{\sqrt{\quad}}{\quad}\right) = \tan^{-1}\sqrt{\quad} = \frac{\pi}{\quad}$$

3. Determina la magnitud y la dirección del vector $\boldsymbol{v} = (\mathbf{2}, -\mathbf{4})$

$$|v| = \sqrt{(\quad)^2 + (\quad)^2} = \sqrt{\quad + \quad} = \sqrt{\quad} = 2\sqrt{\quad}$$

$$\theta = \tan^{-1}\left(\frac{\quad}{\quad}\right) = \tan^{-1}(\quad) = -63° \; aprox \; y \; su \; coterminal \; 297°$$

Ahora pasaremos los grados a radianes

$$(\quad)°\left(\frac{\pi}{\quad°}\right) = \frac{\quad}{\quad}\pi$$

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