

$$A = \begin{pmatrix} -2 & 5 & 0 \\ 0 & -4 & 0 \\ 8 & 6 & 3 \end{pmatrix}$$

Quiz 2 - Vectorial
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(A) $\det(A)$

$$A = \begin{bmatrix} -2 & 5 & 0 \\ 0 & -4 & 0 \\ 8 & 6 & 3 \end{bmatrix}$$

$$\det(A) = 24 - 0 = 24$$

(B) A^{-1}

$$A^{-1} = \frac{1}{\det(A)} [Adj]$$

Cof

$$Adj = Cof^T$$

$$\begin{bmatrix} + & - & + \\ - & + & - \\ + & - & + \end{bmatrix} \begin{bmatrix} -2 & 5 & 0 \\ 0 & -4 & 0 \\ 8 & 6 & 3 \end{bmatrix} = \begin{bmatrix} +(-12) & -(0) & +(32) \\ -(15-0) & +(-6-0) & -(-12-40) \\ +(0) & -(0) & +(8) \end{bmatrix} = \begin{bmatrix} -12 & 0 & 32 \\ -15 & -6 & 52 \\ 0 & 0 & 8 \end{bmatrix}$$

$$Adj = Cof^T$$

$$\begin{bmatrix} -12 & -15 & 0 \\ 0 & -6 & 0 \\ 32 & 52 & 8 \end{bmatrix} = A^{-1} \frac{1}{24} \begin{bmatrix} -12 & -15 & 0 \\ 0 & -6 & 0 \\ 32 & 52 & 8 \end{bmatrix} = \begin{bmatrix} -1/2 & -5/8 & 0 \\ 0 & -1/4 & 0 \\ 4/3 & 13/6 & 1/3 \end{bmatrix}$$

(C) $\det(A^{-1})$

$$\begin{bmatrix} -1/2 & -5/8 & 0 \\ 0 & -1/4 & 0 \\ 4/3 & 13/6 & 1/3 \end{bmatrix} \begin{matrix} 1/2 & -5/8 \\ 0 & -1/4 \\ 4/3 & 13/6 \end{matrix}$$

$$\det(A^{-1}) = \left(\frac{1}{24}\right) \cdot 0$$

$$\det A^{-1} = \frac{1}{24}$$

(d) $\det(Adj(A))$

$$\begin{bmatrix} -12 & -15 & 0 \\ 0 & -6 & 0 \\ 32 & 52 & 8 \end{bmatrix} \begin{matrix} -12 & -15 \\ 0 & -6 \\ 32 & 52 \end{matrix}$$

$$\det(Adj(A)) = (576) - (0)$$

$$\det(Adj(A)) = 576$$

	x	y	z	
	Ciclon	ciclope	cicloide	
			6	1560
Armar	10	12	1,5	340
Probar	2	2,5		
			1,5	320
Instalar	2	2		

$$10x + 12y + 6z = 1560$$

$$2x + 2,5y + 1,5z = 340$$

$$2x + 2y + 1,5z = 320$$

$$A = \begin{bmatrix} 10 & 12 & 6 \\ 2 & 5/2 & 3/2 \\ 2 & 2 & 3/2 \end{bmatrix} \quad \begin{matrix} 10 & 12 \\ 2 & 5/2 \\ 2 & 2 \end{matrix}$$

$$\det(A) = +\left(\frac{75}{2} + 36 + 24\right) - (30 + 30 + 36)$$

$$\det(A) = \frac{195}{2} - 96$$

$$\det(A) = \frac{3}{2}$$

$$Ax = \begin{bmatrix} 1560 & 12 & 6 \\ 340 & 5/2 & 3/2 \\ 320 & 2 & 3/2 \end{bmatrix} \quad \begin{matrix} 1560 & 12 \\ 340 & 5/2 \\ 320 & 2 \end{matrix}$$

$$x = \frac{\det(Ax)}{\det(A)} = \frac{90}{\frac{3}{2}} = \underline{60}$$

$$\det(Ax) = + (5880 + 5760 + 4080) - (6120 + 4680 + 4800)$$

$$\det(Ax) = 15690 - 15600 = 90$$

$$Ay = \begin{bmatrix} 10 & 1560 & 6 \\ 2 & 340 & 3/2 \\ 2 & 320 & 3/2 \end{bmatrix} \quad \begin{matrix} 10 & 1560 \\ 2 & 340 \\ 2 & 320 \end{matrix}$$

$$y = \frac{\det(Ay)}{\det(A)} = \frac{60}{\frac{3}{2}} = \underline{40}$$

$$\det(Ay) = + (8100 + 4680 + 3840) - (4180 + 4800 + 4080)$$

$$\det(Ay) = 13620 - 13560 = 60$$

$$Az = \begin{bmatrix} 10 & 12 & 1560 \\ 2 & 5/2 & 340 \\ 2 & 2 & 320 \end{bmatrix} \quad \begin{matrix} 10 & 12 \\ 2 & 5/2 \\ 2 & 2 \end{matrix}$$

$$\det(Az) = + (8000 + 8160 + 6240) - (7680 + 6800 + 7800)$$

$$\det(Az) = 22400 - 22280 = 120$$

$$z = \frac{\det(Az)}{\det(A)} = \frac{120}{\frac{3}{2}} = \underline{80}$$

Ciclon 60

Ciclope 40

Cicloide 80