

$$1- \begin{array}{c} \nearrow 3 \\ a) \left| \begin{array}{cc} 2 & 3 \\ 1 & 5 \end{array} \right| \Rightarrow 10 - 3 = 7 // \\ \searrow 10 \end{array}$$

$$b) \begin{array}{c} \nearrow -12 \\ \left| \begin{array}{cc} -2 & -4 \\ 3 & 6 \end{array} \right| \Rightarrow -12 - (-12) = 0 // \\ \searrow -12 \end{array}$$

$$c) \begin{array}{c} \nearrow -12 \\ \left| \begin{array}{ccc} 3 & -1 & 1 \\ 2 & 1 & -1 \\ 1 & 4 & -2 \end{array} \right| \Rightarrow \\ \searrow -12 \end{array}$$

$$(-6 + 1 + 8) - (1 + 4 - 12)$$

$$3 - 1 - 4 + 12 \Rightarrow 10 //$$

$$d) \begin{array}{c} \nearrow -12 \\ \left| \begin{array}{ccc} 3 & 2 & -1 \\ 2 & 3 & 1 \\ 1 & 1 & 4 \end{array} \right| \Rightarrow \\ \searrow -12 \end{array}$$

$$(36 + 2 - 2) - (-3 + 16 + 3)$$

$$36 + 3 - 16 - 3 \Rightarrow 20 //$$

$$2- \begin{vmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{vmatrix} \Rightarrow \begin{vmatrix} -3 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & -3 \end{vmatrix} \Rightarrow -27 //$$

$$3- \begin{vmatrix} x & 1 & x \\ 3 & x & 4 \\ 1 & 3 & 3 \end{vmatrix} = -3$$

$$(3x^2 + 4 + 9x) - (x^2 + 9 + 12x) = -3$$

$$3x^2 + 4 + 9x - x^2 - 9 - 12x = -3$$

$$2x^2 - 3x - 5 = -3$$

$$2x^2 - 3x - 2 = 0$$

$$\Delta = 25$$

$$\frac{3 \pm 5}{4} \begin{cases} \frac{8}{4} = 2 \\ \frac{-2}{4} = -\frac{1}{2} // \end{cases}$$

$$4 - \begin{vmatrix} x-1 & -1 & 0 \\ 0 & x+1 & -1 \\ 2 & -1 & x+1 \end{vmatrix} = 2$$

$$((x-1) \cdot (x+1) \cdot (x+1) + 2) - (2x+2 \cdot x-1) = 2$$

$$(x^3 + x^2 - x - 1 + 2) - (3x + 1) = 2$$

$$x^3 + x^2 - x + 1 - 3x - 1 = 2$$

$$x^3 + x^2 - 4x - 2 = 0$$

$$R \begin{pmatrix} 1,81 \\ -2,34 \\ -0,47 \end{pmatrix} \Rightarrow -1 //$$

5 -

$$\begin{bmatrix} 0 & 1 & 2 \\ -1 & 0 & 1 \end{bmatrix}$$

x

$$\begin{bmatrix} -1 & -4 \\ 1 & -2 \\ 3 & 0 \end{bmatrix}$$

$$\begin{vmatrix} 4 & -1 & -6 \\ 2 & 1 & 0 \\ 0 & 3 & 6 \end{vmatrix} \Rightarrow 0 //$$

$$(24 + 0 - 36) - (0 \cdot 12 \cdot 0)$$

$$-12 + 12$$

$$0$$

6 -

$$X \begin{bmatrix} 1 & -1 \\ -1 & 1 \\ 0 & 2 \end{bmatrix}$$

$$\begin{bmatrix} 2 & 0 & -1 \\ -1 & 1 & 0 \end{bmatrix} \left| \begin{array}{c} 2 & -4 \\ 2 & 2 \end{array} \right| \Rightarrow -4 //$$

$$4 - (+8)$$