(01) a) $\begin{vmatrix} 2 & 3 \\ 1 & 5 \end{vmatrix} = |10-3| = 7$

b) $\begin{vmatrix} -2 & -4 \\ 3 & 6 \end{vmatrix} = (-2)6 - 3.(-4) = -12 - (-12) = 0$

c)
$$\begin{vmatrix} 3 & -1 & 1 \\ 2 & 1 & -1 \\ 1 & 4 & -2 \end{vmatrix} \begin{matrix} 3 & -1 \\ 2 & 1 \\ 1 & 4 \end{matrix}$$

$1 + (-12) + 4 = 7$

$-6 + 1 + 8 = 3$

$3 - (-7) = 3 + 7 = 10$

d)
$$\begin{vmatrix} 3 & 2 & 1 \\ 2 & 3 & 1 \\ 1 & 1 & 4 \end{vmatrix} \begin{matrix} 3 & 2 \\ 2 & 3 \\ 1 & 1 \end{matrix}$$

$-3 + 3 + 16 = 16$

$36 + 2 + (-2) = 36$

$36 - 16 = 20$

(02) Se $i = j \therefore A_{ij} = -3 = a_{11} = a_{22} = a_{33}$

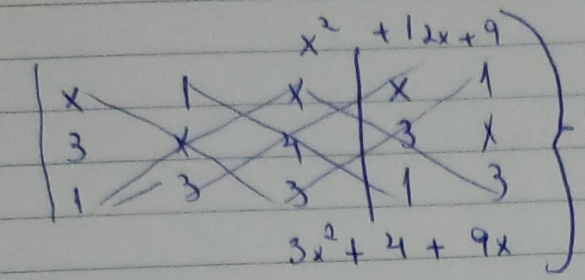
Se $i \neq j \therefore A_{ij} = 0$

$$\begin{vmatrix} -3 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & -3 \end{vmatrix} \begin{matrix} 0 & 0 \\ -3 & 0 \\ 0 & -3 \end{matrix} = -27$$

$-27 + 0 + 0$

*

03) $x^2 + 12x + 9$



$3x^2 + 4 + 9x$

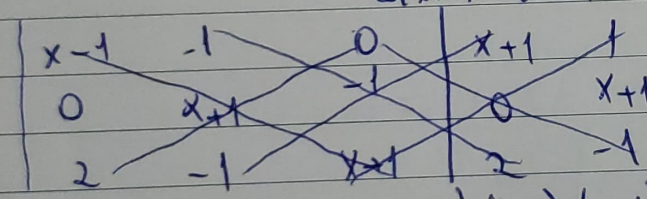
④ $3x^2 + 9x + 4$
$-x^2 - 12x - 9$
$2x^2 - 3x - 5 = -3 + 3$
$2x^2 - 3x - 2 = 0$

$\Delta = (-3)^2 - 4.2.(-2)$
$\Delta = 9 + 16$
$\Delta = 25$

$x = \frac{-(-3) \pm \sqrt{25}}{2.2} = \frac{3 \pm 5}{4}$

$x1 = 2$
$x2 = -1/2$

4) $2(x+1) + (x+1)$



$(x-1)(x+1)(x+1)+2$

$(x-1)(x+1)(x+1) + 2 - 2(x+1) - (x-1) = 2$
$(x^2-1)(x+1) - 2x - 2 - x + 1 = 0$
$x^3 + x^2 - x - 1 - 2x - x - 1 = 0$
$x^3 + x^2 - 4x - 2 = 0$

$\frac{-b}{A} = \frac{-1}{1} = -1$

$a = 1$
$b = 1$

*Efeito
(Soma das Raízes (cúbica)

SEG TER QUA QUI SEX SÁB DOM

06) $A = \begin{bmatrix} 2 & 0 & 1 \\ -1 & 1 & 0 \end{bmatrix}$ $B = \begin{bmatrix} 1 & -1 \\ -1 & 1 \\ 0 & 2 \end{bmatrix}$

$A_{2\times3} \cdot B_{3\times2} = AB_{2\times2}$

$AB = \begin{bmatrix} 2+0+0 & -2+0-2 \\ -1-1+0 & 1+1+0 \end{bmatrix}$ $A = 4-8 = -4$

$\begin{bmatrix} 2 & -4 \\ -2 & 2 \end{bmatrix}$ 8, 4

09) $A = \begin{bmatrix} -1 & -4 \\ 1 & -2 \\ 3 & 0 \end{bmatrix}$

$A_{ij} = 2i-3j$

$A_{11} = 2.1-3.1 = -1$

A_{12} $2.1-3.2 = 4$

A_{21} $2.2-3.1 = 1$

A_{22} $2.2-3.2 = -2$

A_{31} $2.3-3.1 = 3$

A_{32} $2.3-3.2 = 0$

$B_{jk} = k-j$

$B_{11} = 1-1 = 0$

$B_{12} = 2-1 = 1$

$B_{13} = 3-1 = 2$

$B_{21} = 1-2 = -1$

$B_{22} = 2-2 = 0$

$B_{23} = 3-2 = 1$

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

$AB = \begin{bmatrix} 0+4 & -1+0 & -2-4 \\ 0+2 & 1+0 & 2-2 \\ 0+0 & 3+0 & 6+0 \end{bmatrix} = \begin{bmatrix} 4 & -1 & -6 \\ 2 & 1 & 0 \\ 0 & 3 & 6 \end{bmatrix}$

$0+0-12$, $24+0-36$

$AB = 24-36-(-12) = -12+12 = 0$