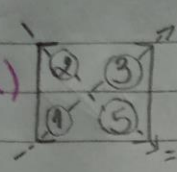
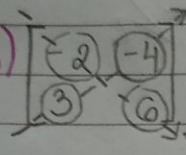
Nome: Kemily Teixeira Cruz CTII-317

Tarefa Básica - Determinantes de matrizes de ordem 1, 2 e 3

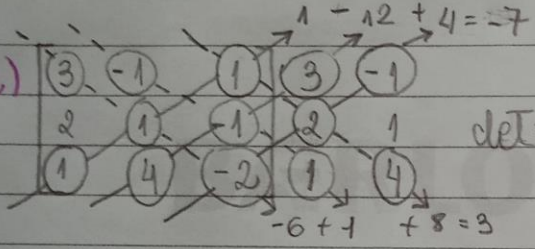
01.

a) 

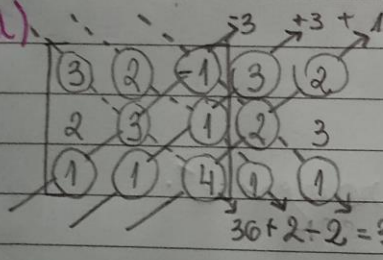
$det = 10 - 3 = 7$ ✓

b) 

$det = -12 - (-12) = 0$ ✗

c) 

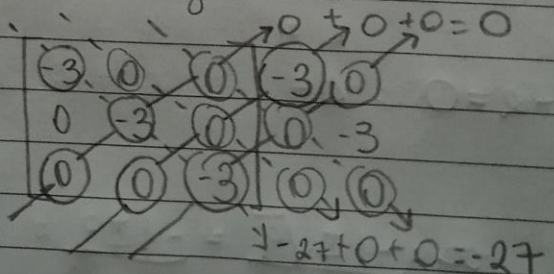
$det = 3 - (-7) = 10$ ✗

d) 

$det = 36 - 16 = 20$ ✗

02. $A = (a_{ij})$ $a_{ij} = \begin{cases} -3, \text{ se } i = j \\ 0, \text{ se } i \neq j \end{cases}$

$$A = \begin{bmatrix} -3 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & -3 \end{bmatrix}_{3\times3}$$



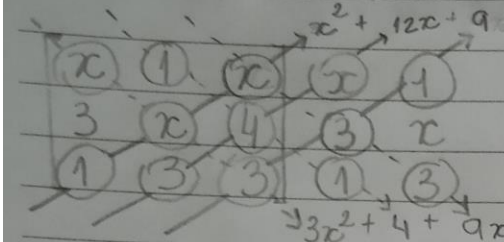
$detA = -27$ ✓ Letra A ✓

DATA / FECHA / DATE

S L/M	T M/T	Q M/W	Q J/T	S V/F	S S/S	D D/S

03.

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



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

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

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

$\Delta = (-3)^2 - 4.2.(-2)$

$\Delta = 9+16$

$\Delta = 25$

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

$x_1 = \frac{8}{4} = 2$

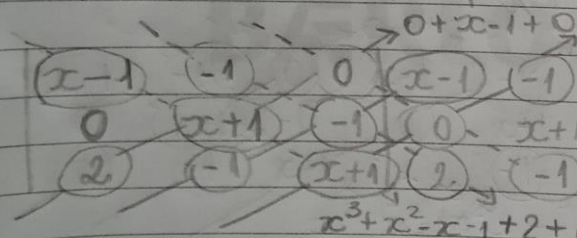
$x_2 = \frac{-2}{4} = -\frac{1}{2}$

$S = \{-1/2, 2\}$

Letra E

04.

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



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

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

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

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

$x(x^2+x-2)=0$

$x=0$ ou $x^2+x-2=0$

$\Delta = 1^2 - 4.1.(-2)$

$\Delta = 1+8$

$\Delta = 9$

$x = \frac{-1 \pm \sqrt{9}}{2} = \frac{-1 \pm 3}{2} =$

$x_1 = 1$

$x_2 = -2$

A soma das raízes é:

$0+1-2=-1$

05. $A_{3x2} = a_{ij} = 2i - 3j$ $\quad B_{2x3} = b_{jk} = k - j$

$$A \cdot B = \begin{bmatrix} -1 & -4 \\ 1 & -2 \\ 3 & 0 \end{bmatrix} \cdot \begin{bmatrix} 0 & 1 & 2 \\ -1 & 0 & 1 \end{bmatrix} = \begin{bmatrix} 0+4 & -1+0 & -2-4 \\ 0+2 & 1+0 & 2-2 \\ 0+0 & 3+0 & 6+0 \end{bmatrix} \Rightarrow$$

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

$0+0-12 = -12$

$24+0-36 = -12$

$\det AB = -12 - (-12) = 0$

Letra C

06.

$$A \cdot B = \begin{bmatrix} 2 & 0 & -1 \\ -1 & 1 & 0 \end{bmatrix} \cdot \begin{bmatrix} 1 & -1 \\ -1 & 1 \\ 0 & 2 \end{bmatrix} = \begin{bmatrix} 2+0+0 & -2+0-2 \\ -1-1+0 & +1+1+0 \end{bmatrix} \Rightarrow$$

$$AB = \begin{bmatrix} 2 & -4 \\ -2 & 2 \end{bmatrix} \begin{matrix} \rightarrow 8 \\ \rightarrow 4 \end{matrix}$$

$\det AB = 4 - 8 = -4$

Letra D