data
fecha

01.

$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}$

$A = 2 \cdot 5 - 3 \cdot 1$

$A = 10 - 3$

$A = 7$

$B = \begin{bmatrix} -2 & -4 \\ 3 & 6 \end{bmatrix}$

$B = -2 \cdot 6 - (-4) \cdot 3$

$B = -12 + 12$

$B = 0$

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

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

3 -1 1 3 -1
2 1 -1 2 1
1 4 -2 1 4

(3·1·-2) (-1·-1·1) (1·2·4)
(1·1·1) (4·-1·3) (-2·2·-1)

-6+1+8 - 1+12-4

3+7

C = 10.

3 2 -1 3 2
2 3 1 2 3
1 1 4 1 1

(3·3·3) = 36 (1·3·-1) = ~~3~~
(2·1·1) = ~~2~~
(-1·2·1) = ~~-2~~
(4·2·2) = 16
(3·1·1) = ~~3~~

36 - 16

D = 20

10.

a)

$A = i = j \;/\; i \neq j$

$i = j \rightarrow -3$ $\quad i \neq j \rightarrow 0$

$$\begin{bmatrix} -3 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & -3 \end{bmatrix}$$

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

(A) -27

$(-3 \cdot -3 \cdot -3) = -27$

↳ única que não DA 0

03)

$$\frac{x}{3}\ \frac{1}{x}\ \frac{x}{4}\ \frac{x}{3}\ \frac{1}{x} = -3$$

$$\frac{1}{3}\ \frac{3}{1}$$

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

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

$$x(2x + 1) - 2(2x + 1) = 0$$
$$(2x + 1) \cdot (x - 2) = 0$$

$2x + 1 = 0$	$x - 2 = 0$
$x = -\frac{1}{2}$	$x = 2.$

e) $\left\{-\frac{1}{2}; 2\right\}$

data
fecha

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

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

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

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

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

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

$x(x\cdot(x+2) - (x-1)) = 0$

$x = 0$	$x - 1 = 0$	$x + 2 = 0$
$\therefore x = 0;$	$x = 1$	$x = -2$

C): $0 + 1 - 2 = -1;$

data
fecha

05)

A = 3x2

$a_{11} = 2 \cdot 1 - 3 \cdot 1 = -1$
$a_{12} = 2 \cdot 1 - 3 \cdot 2 = -4$
$a_{21} = 2 \cdot 1 - 3 \cdot 1 = -1$
$a_{22} = 2 \cdot 1 - 3 \cdot 2 = -2$
$a_{31} = 2 \cdot 2 - 3 \cdot 1 = 3$
$a_{32} = 2 \cdot 3 - 3 \cdot 2 = 0$

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

B = 2x3

$a_{11} = 1 - 1 = 0$
$a_{12} = 2 - 1 = 1$
$a_{13} = 3 - 1 = 2$
$a_{21} = 1 - 2 = -1$
$a_{22} = 2 - 2 = 0$
$a_{23} = 3 - 2 = 1$

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

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

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

$(4 \cdot 1 \cdot 6) \ (-1 \cdot 0 \cdot 2) \ (-6 \cdot 2 \cdot 3) = 12 - 12 = 0$
$(0 \cdot 1 \cdot -6) \ (3 \cdot 0 \cdot 4) \ (6 \cdot 2 \cdot 1)$

C

data
fecha

06)

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

$$\begin{matrix} (2\cdot1)+(0\cdot-1) & (-1\cdot0) & (2\cdot-1)+(0\cdot1)+(1\cdot2) \\ (-1\cdot1)+(1\cdot-1)+(0\cdot0) & & (-1\cdot1)+(1\cdot1)+(0\cdot2) \end{matrix}$$

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

$$2\cdot2-(-4)\cdot-2$$

D) $4-8=-4$