

## Tarefa básica

1)  $A = (a_{ij})_{3 \times 2}$  lei  $2i + 3j$

$$\begin{aligned} a_{11} &= 2 \cdot 1 + 3 \cdot 1 = 5 & a_{12} &= 2 \cdot 1 + 3 \cdot 2 = 8 \\ a_{21} &= 2 \cdot 2 + 3 \cdot 1 = 7 & a_{22} &= 2 \cdot 2 + 3 \cdot 2 = 10 \\ a_{31} &= 2 \cdot 3 + 3 \cdot 1 = 9 & a_{32} &= 2 \cdot 3 + 3 \cdot 2 = 12 \end{aligned}$$

$$A = \begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \\ a_{31} & a_{32} \end{pmatrix} = A = \begin{pmatrix} 5 & 8 \\ 7 & 10 \\ 9 & 12 \end{pmatrix},,$$

2)  $A = (a_{ij})_{2 \times 2}$  lei  $a_{ij} = j^2 + 4j^0$

$$\begin{aligned} a_{11} &= 1^2 + 4 \cdot 1^0 = 5 & a_{12} &= 2^2 + 4 \cdot 2^0 = 17 \\ a_{21} &= 2^2 + 4 \cdot 1^0 = 8 & a_{22} &= 2^2 + 4 \cdot 2^0 = 20 \end{aligned}$$

$$A = \begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{pmatrix} = A = \begin{pmatrix} 5 & 17 \\ 8 & 20 \end{pmatrix} (1)$$

3)

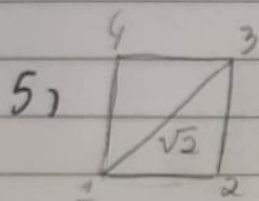
$$\begin{aligned} x+2 &= -x \\ x &= -1 \end{aligned} \quad \left\{ \begin{aligned} 2y &= y-1 \\ y &= -1 \end{aligned} \right\} \left\{ \begin{aligned} z+1 &= -2z \\ z &= -\frac{1}{3} \end{aligned} \right\}$$

$$\begin{pmatrix} 1 & x+2 \\ y-1 & z+1 \end{pmatrix} = \begin{pmatrix} 1 & -x \\ 2y & -2z \end{pmatrix} \quad \begin{aligned} x &= -1 \\ y &= -1 \\ z &= -\frac{1}{3} \end{aligned}$$

4)

$$\begin{cases} 3x = 2x + 1 \\ x = 1 \end{cases} \Rightarrow \begin{cases} -1 = y \\ y = -1 \end{cases} \Rightarrow \begin{cases} 1 = z - 1 \\ z = 2 \end{cases}$$

$$\begin{pmatrix} 3 & -x \\ 3x & x \end{pmatrix} = \begin{pmatrix} 3 & y \\ 2x+1 & z-1 \end{pmatrix} \Rightarrow \begin{cases} x = 1 \\ y = -1 \\ z = 2 \end{cases}$$



$$A = \begin{pmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \\ a_{41} & a_{42} & a_{43} & a_{44} \end{pmatrix}$$

$$A = \begin{pmatrix} 0 & 1 & \sqrt{2} & 1 \\ 1 & 0 & 1 & \sqrt{2} \\ \sqrt{2} & 1 & 0 & 1 \\ 1 & \sqrt{2} & 1 & 0 \end{pmatrix} \quad (B)$$

6)  $2a - b$

$$A = \begin{pmatrix} -1 & -2 \\ 2 & 4 \\ 3 & 6 \end{pmatrix}$$

e

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

$$2A - B = \begin{pmatrix} -2 \\ 6 \\ 5 \end{pmatrix}$$

(D)

7)  $A - B^T$

$$A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{pmatrix} \quad B = \begin{pmatrix} -1 & 2 \\ 3 & 0 \\ 2 & 1 \end{pmatrix} \quad A - B = \begin{pmatrix} 2 & 0 \\ 0 & 4 \\ 3 & 5 \end{pmatrix} \quad (B)$$

8)  $A = A^T$

$$A = \begin{pmatrix} 2 & -1 & 2y \\ x & 0 & -3 \\ 4 & 3 & 2 \end{pmatrix} \quad A^T = \begin{pmatrix} 2 & x & 4 \\ -1 & 0 & 3 \\ 2y & -3 & 2 \end{pmatrix}$$

$$\begin{aligned} x &= -1 & 2y &= 4 & -3 &= 3 \\ & & y &= 2 & y &= -3 \end{aligned} \quad \left\{ \begin{aligned} x + y + z &= \\ (-1) + 2 + (-3) &= -2 \end{aligned} \right. \quad (A)$$

9)

$$A = \begin{pmatrix} 1 & 3 \\ 3 & 1 \\ 4 & 5 \end{pmatrix} \quad B = \begin{pmatrix} 1 & 0 \\ 0 & 2 \\ 0 & 0 \end{pmatrix} \quad A + B = \begin{pmatrix} 2 & 3 \\ 3 & 3 \\ 4 & 5 \end{pmatrix} \quad (C)$$

10)

$$\begin{aligned} M &= \begin{pmatrix} x & 8 \\ 10 & y \end{pmatrix} & N &= \begin{pmatrix} y & 6 \\ 12 & x+4 \end{pmatrix} & P &= \begin{pmatrix} 7 & 16 \\ 23 & 13 \end{pmatrix} \\ & \frac{3}{2} & \frac{3}{3} & y-x \end{aligned}$$

$$\begin{aligned} \frac{2x}{2} &= 8 & \frac{2y}{3} &= 6 \\ 10 &= \frac{2x}{2} & 12 &= \frac{2x+4}{3} \end{aligned}$$

$$\begin{aligned} \frac{2x}{2} + \frac{2y}{2} &= 7 \Rightarrow 9x + 4y = 42 \\ \frac{2x}{2} + \frac{2(x+4)}{3} &= 13 \Rightarrow 4x + 9y = 26 \end{aligned}$$

$$\begin{aligned} 9y - 4y + 4x - 9x &= 68 - 42 \\ 5y - 5x &= 26 \\ 5(y-x) &= 26 \\ y-x &= 4 \quad (B) \end{aligned}$$

