Tarefa Básica

① $A = \begin{bmatrix} 5 & 8 \\ 7 & 10 \\ 9 & 12 \end{bmatrix}_{3\times 2}$ $\quad a_{ij} = 2i + 3j$

② $A = \begin{bmatrix} 5 & 17 \\ 8 & 20 \end{bmatrix}_{2\times 2}$ $\quad a_{ij} = i^2 + 4j^2$

Alternativa (A)

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

$x + 2 = -x$

$2x = -2$

$x = -1$

$y - 1 = 2y$

$y = -1$

$z + 1 = -2z$

$3z = -1$

$z = \frac{-1}{3}$

④ $\begin{bmatrix} 3 & -x \\ 3x & x \end{bmatrix} = \begin{bmatrix} 3 & y \\ 2x+1 & z-1 \end{bmatrix}$

$3x = 2x + 1$

$x = 1$

$x = z - 1$

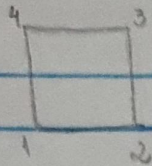
$1 = z - 1$

$z = 2$

$-x = y$

$-1 = y$

⑤



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

Alternativa (B)

⑥ $A = \begin{bmatrix} -1 \\ 2 \\ 3 \end{bmatrix}$ $B = \begin{bmatrix} 0 \\ -2 \\ 1 \end{bmatrix}$ $2A - B = \begin{bmatrix} -2 \\ 6 \\ 5 \end{bmatrix}$

$2A = \begin{bmatrix} -2 \\ 4 \\ 6 \end{bmatrix}$

Alternativa (D)

⑦ $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$ $B^t = \begin{bmatrix} -1 & 2 \\ 3 & 0 \\ 2 & 1 \end{bmatrix}$

$B = \begin{bmatrix} -1 & 3 & 2 \\ 2 & 0 & 1 \end{bmatrix}$ $A - B^t = \begin{bmatrix} 2 & 0 \\ 0 & 4 \\ 3 & 5 \end{bmatrix}$

Alternativa (B)

⑧ $A = \begin{bmatrix} 2 & -1 & 2y \\ x & 0 & -3 \\ 4 & 3 & 2 \end{bmatrix}$ $A^t = \begin{bmatrix} 2 & x & 4 \\ -1 & 0 & 3 \\ 2y & -3 & 2 \end{bmatrix}$

$2y = 4$ $\quad -3 = 3 \times (-1)$ $\quad x = -1$

$y = 2$ $\quad 3 = -3$

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

Alternativa (A)

⑨ $A = \begin{bmatrix} 1 & 3 \\ 3 & 1 \\ 4 & 5 \end{bmatrix}$ $a_{ij} = i + j$, se $i \neq j$; $a_{ij} = 1$, se $i = j$

$B = \begin{bmatrix} 1 & 0 \\ 0 & 2 \\ 0 & 0 \end{bmatrix}$ $b_{ij} = 0$, se $i \neq j$; $b_{ij} = 2i - j$, se $i = j$

$A + B = \begin{bmatrix} 2 & 3 \\ 3 & 3 \\ 4 & 5 \end{bmatrix}$ Alternativa (C)

⑩ $M = \begin{bmatrix} x & 8 \\ 10 & y \end{bmatrix}$, $N = \begin{bmatrix} y & 6 \\ 12 & x+4 \end{bmatrix}$, $P = \begin{bmatrix} 7 & 16 \\ 23 & 13 \end{bmatrix}$

$\frac{3}{2} M = \begin{bmatrix} 3x/2 & 12 \\ 15 & 3y/2 \end{bmatrix}$, $\frac{2}{3} N = \begin{bmatrix} 2y/3 & 4 \\ 8 & 2x/3 + 8/3 \end{bmatrix}$

$\frac{3x}{2} + \frac{2y}{3} = 7 \Rightarrow \frac{9x}{6} + \frac{4y}{6} = \frac{42}{6}$

$\frac{3y}{2} + \frac{2x}{3} + \frac{8}{3} = 13 \Rightarrow \frac{9y}{6} + \frac{4x}{6} + \frac{16}{6} = \frac{78}{6}$

$9x + 4y = 42$

$9y + 4x + 16 = 78 \Rightarrow 9y + 4x = 62$

$4y + 9x = 42 \quad \times(-2,25)$

$9y + 4x = 62$

$-9y - 20,25x = -94,5$

$9y + 4x = 62$

$-16,25x = -32,5$

$x = 2$

$9y + 4 \cdot 2 = 62$

$9y + 8 = 62$

$9y = 54$

$y = 6$

$y - x = 6 - 2 = 4$

Alternativa (B)