

Matrizes tarefas básicas:

1.

06/05/2021

Tarefa básica:

① $a_{ij} = 2i + 3j$

R: $\begin{bmatrix} 5 & 8 \\ 7 & 10 \\ 9 & 12 \end{bmatrix}$

$5 = 2 \cdot 1 + 3 \cdot 1 \rightarrow a_{11} \quad a_{12} \rightarrow 2 \cdot 1 + 3 \cdot 2 = 8$
 $7 = 2 \cdot 2 + 3 \cdot 1 \rightarrow a_{21} \quad a_{22} \rightarrow 2 \cdot 2 + 3 \cdot 2 = 10$
 $9 = 2 \cdot 3 + 3 \cdot 1 \rightarrow a_{31} \quad a_{32} \rightarrow 2 \cdot 3 + 3 \cdot 2 = 12$

2.

②

R: A $\begin{bmatrix} 5 & 17 \\ 8 & 20 \end{bmatrix}$

$1^2 + 4 \cdot 1^2 = 5 \rightarrow a_{11} \quad a_{12} \rightarrow 1^2 + 4 \cdot 2^2 = 17$
 $2^2 + 4 \cdot 1^2 = 8 \rightarrow a_{21} \quad a_{22} \rightarrow 2^2 + 4 \cdot 2^2 = 20$

R: letra A.

3.

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

R: $x = -1, y = -1$ e $z = -\frac{1}{3}$

$y-1 = 2y \rightarrow y-2y = 1 \rightarrow -y = 1 \cdot (-1) \rightarrow y = -1$
 $z+1 = -2z \rightarrow z+2z = -1 \rightarrow 3z = -1 \rightarrow z = -\frac{1}{3}$
 $x+2 = -x \rightarrow x+x = -2 \rightarrow 2x = -2 \rightarrow x = -\frac{2}{2} \rightarrow x = -1$

R: $x = -1, y = -1$ e $z = -1/3$

4.

④ $\begin{bmatrix} 3 & -X \\ 3X & X \end{bmatrix} = \begin{bmatrix} 3 & Y \\ 2X+1 & Z-1 \end{bmatrix}$ $\{R: X=1, Y=-1 \text{ e } Z=2\}$

$3X = 2X+1$ $Y = -X$ $Z-1 = X$
 $3X - 2X = 1$ $Y = -1$ $Z-1 = 1$
 $X = 1$ $Z = 1+1$
 $Z = 2$

R: $X = 1, Y = -1$ e $Z = 2$

5.

06/05/2021 $\text{letra 1} = 0$
 $\text{letra 2 e 4} = 1$
 $\text{letra 3} = \sqrt{2}$

⑤ $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$ $\{R: B\} \begin{bmatrix} 0 & 1 & \sqrt{2} & 1 \\ 1 & 0 & 1 & \sqrt{2} \\ \sqrt{2} & 1 & 0 & 1 \\ 1 & \sqrt{2} & 1 & 0 \end{bmatrix}$

$X^2 = 1^2 + 1^2$
 $X^2 = 1 + 1$
 $X = \sqrt{2}$

R: letra B.

6.

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

$\begin{bmatrix} -2 \\ 4 \\ 6 \end{bmatrix} - \begin{bmatrix} 0 \\ -2 \\ 1 \end{bmatrix} = \begin{bmatrix} -2 \\ 6 \\ 5 \end{bmatrix}$ $\{R: D\} \begin{bmatrix} -2 \\ 6 \\ 5 \end{bmatrix}$

R: letra D.

7.

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

$$A - B^* = \begin{bmatrix} 2 & 0 \\ 0 & 4 \\ 3 & 5 \end{bmatrix} \quad R: B) \begin{bmatrix} 2 & 0 \\ 0 & 4 \\ 3 & 5 \end{bmatrix}$$

R: letra B.

8.

$$\textcircled{8} \quad A = \begin{bmatrix} 2 & -1 & 2y \\ x & 0 & -z \\ 4 & 3 & 2 \end{bmatrix} \quad A^* = \begin{bmatrix} 2 & x & 4 \\ -1 & 0 & 3 \\ 2x & -z & 2 \end{bmatrix} \quad \begin{array}{l} x = -1 \\ -z = 3 \\ z = -3 \end{array} \quad \begin{array}{l} 4 = 2y \\ 4/2 = y \\ y = 2 \end{array}$$

$$x + y + z = -1 + 2 + (-3) = -2$$

$$-1 + 2 - 3 = -2$$

$$1 - 3 = -2$$

$$R: A) -2$$

R: A) -2.

9.

06/05/2021

⑨ $A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \\ a_{31} & a_{32} \end{bmatrix}$ $B = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \\ a_{31} & a_{32} \end{bmatrix}$

$a_{ij} = i + j$ se $i \neq j$
 $a_{ij} = 1$ se $i = j$
 $b_{ij} = 0$ se $i \neq j$
 $b_{ij} = 2i - j$ se $i = j$

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

R: C) $\begin{bmatrix} 2 & 3 \\ 3 & 3 \\ 4 & 5 \end{bmatrix}$

R: letra C.

10.

10) $M = \begin{bmatrix} x & 8 \\ 10 & y \end{bmatrix}$ $N = \begin{bmatrix} y & 6 \\ 12 & x+4 \end{bmatrix}$ $P = \begin{bmatrix} 7 & 16 \\ 23 & 13 \end{bmatrix}$ (06/05/2021)

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$\begin{bmatrix} 1,5x & 12 \\ 15 & 1,5y \end{bmatrix}$ $\begin{bmatrix} \frac{2}{3}y & 4 \\ 8 & \frac{2}{3}x+6 \end{bmatrix}$

$\frac{3x}{2} = \frac{3x}{2}$ $\frac{2y}{3} = \frac{2y}{3}$

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

$9x+4y=42$
 $4y=42-9x$
 $y=\frac{42-9x}{4}$

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

$\frac{42-9x}{4} + \frac{4x+16}{3} \rightarrow X=2$

$y=\frac{42-9x}{4} \rightarrow y=\frac{42-18}{4} \rightarrow y=\frac{24}{4} \rightarrow y=6$

$y-x$
 $6-2=4$

R: 2-14

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R: B) 4.