

Tarefa básica

1)  $a_{11} = 2 \cdot 1 + 3 \cdot 1 = 5$

$a_{12} = 2 \cdot 1 + 3 \cdot 2 = 8$

♥  $a_{21} = 2 \cdot 2 + 3 \cdot 1 = 7$

$$A = \begin{bmatrix} 5 & 8 \\ 7 & 10 \\ 9 & 12 \end{bmatrix}$$

$a_{22} = 2 \cdot 2 + 3 \cdot 2 = 10$

$a_{31} = 2 \cdot 3 + 3 \cdot 1 = 9$

$a_{32} = 2 \cdot 3 + 3 \cdot 2 = 12$

2)  $a_{11} = 1^2 + 4 \cdot 1^2 = 1 + 4 = 5$

$a_{12} = 1^2 + 4 \cdot 2^2 = 1 + 16 = 17$

(Letra "A")

$a_{21} = 2^2 + 4 \cdot 1^2 = 4 + 4 = 8$

$a_{22} = 2^2 + 4 \cdot 2^2 = 4 + 16 = 20$

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

$1=1$

$x+2=-x \quad x-2=-x \quad x=-1$

$y-1=2y \quad y-1=2y \quad y=-1$

$2z+1=-2z \quad 2z-1=-2z \quad z=-1$

3

$x=-1 \quad y=-1 \quad z=-1$

3

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

$$\begin{aligned} 3 &= 3 \\ -x &= y \\ 3x &= 2x+1 \\ x &= z-1 \end{aligned} \quad \begin{aligned} &\rightarrow \begin{cases} -x-y=0 \\ x=1 \\ x-z=-1 \end{cases} \quad \rightarrow \begin{cases} 1+y=0 \\ 1-z=-1 \end{cases} \quad \begin{cases} -1=-1 \\ 3 \cdot 1 = 2 \cdot 1 + 1 \\ 1 = 2-1 \end{cases} \\ &\begin{cases} x+y=0 \\ x=1 \\ x-z=-1 \end{cases} \quad \begin{cases} y=-1 \\ z=2 \end{cases} \quad \begin{cases} -1=-1 \\ 3=3 \\ 1=1 \end{cases} \end{aligned}$$

$$(x, y, z) = (1, -1, 2)$$

$$5) \begin{array}{|c|c|c|c|} \hline 11 & 12 & 13 & 14 \\ \hline 21 & 22 & 23 & 24 \\ \hline 31 & 32 & 33 & 34 \\ \hline 41 & 42 & 43 & 44 \\ \hline \end{array}$$

all = 0 → Distância entre i e j

$a_{12} = 1$   
 $a_{13} = \sqrt{2}$   
 $a_{14} = 1$   
 $a_{21} = 1$   
 $a_{22} = 0$   
 $a_{23} = 1$   
 $a_{24} = \sqrt{2}$   
 $a_{31} = \sqrt{2}$   
 $a_{32} = 1$   
 $a_{33} = 0$   
 $a_{34} = 1$   
 $a_{41} = 1$   
 $a_{42} = \sqrt{2}$   
 $a_{43} = 1$   
 $a_{44} = 0$

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

(detra "B")

$$6) 2. \begin{bmatrix} -1 \\ 2 \\ 3 \end{bmatrix} - \begin{bmatrix} 0 \\ -2 \\ 1 \end{bmatrix} \rightarrow \begin{bmatrix} -2 \\ 4+2 \\ 6-1 \end{bmatrix}$$

$$\begin{bmatrix} -2 \\ 4 \\ 6 \end{bmatrix} - \begin{bmatrix} 0 \\ -2 \\ 1 \end{bmatrix} \rightarrow \begin{bmatrix} -2 \\ 6 \\ 5 \end{bmatrix} \rightarrow \text{Letra D}$$

$$\begin{bmatrix} -2-0 \\ 4-(-2) \\ 6-1 \end{bmatrix}$$

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

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

$$A-B = \begin{bmatrix} 2 & 0 \\ 0 & 4 \\ 3 & 5 \end{bmatrix} \rightarrow \text{Letra B}$$



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

$$A = A^T$$

$$\begin{cases} x = -1 \\ 2y = 4 \\ -z = 3 \end{cases} \Rightarrow \begin{cases} y = 2 \\ z = 4 \end{cases} \quad \begin{aligned} x + y + z &= -1 + 2 + 4 \\ x + y + z &= 5 \end{aligned}$$

$$9) \begin{array}{ll} a_{11} = 1 & b_{11} = 1 \\ a_{12} = 3 & b_{12} = 0 \\ a_{21} = 3 & b_{21} = 0 \\ a_{22} = 1 & b_{22} = 2 \\ a_{31} = 4 & b_{31} = 0 \\ a_{32} = 5 & b_{32} = 0 \end{array} \quad A = \begin{bmatrix} 1 & 3 \\ 3 & 1 \\ 4 & 5 \end{bmatrix} \quad B = \begin{bmatrix} 1 & 0 \\ 0 & 2 \\ 0 & 0 \end{bmatrix}$$

$$A + B =$$

$$\begin{bmatrix} 2 & 3 \\ 3 & 3 \\ 4 & 5 \end{bmatrix}$$

$$10) \begin{matrix} vm = \\ (x8) \\ (10, y) \end{matrix} \quad \begin{matrix} (3x/2 \dots 12) \\ (15 \dots 3y/2) \\ 2/3^*(y \dots 6) \\ \dots (12 \dots x+4) \end{matrix}$$

$$\begin{matrix} N = \\ (y6) \\ (12x+4) \end{matrix} \quad \begin{matrix} (2y/3 \dots 4) \\ (8 \dots 2x+8/3) \\ (3x/2 \dots 12) \quad (3x/2y/3 \dots 12+4=16) \\ (15 \dots 3y/2) = (15+8=23 \dots (2x+8/3y)) \end{matrix}$$

$$P = \begin{matrix} (7 \ 16) \\ (23 \ 13) \end{matrix} \quad \begin{matrix} + \\ (2y/3 \dots 4) \\ (8 \dots [2x+8/3]) \end{matrix}$$

$$\begin{matrix} 3/2 \ vm + 2/3 \ vn = p \\ 3/2^*(x8) \\ (10, y) \end{matrix}$$

↓

$$\begin{matrix} 3x/2 + 2y/3 = 7 \\ 2x + 8/3 + 3y/2 = 13 \end{matrix}$$

$$\begin{matrix} 9x/6 + 2^*2y/6 = 42/6 \\ 2(2x+8)/6 + 3^*3y/6 = 13^*6 \\ 9x + 4y = 42 \\ 4x + 16 + 9y = 78 \end{matrix}$$

$$\begin{matrix} 9x + 4y = 42 \\ 4x + 9y = 62 \end{matrix}$$

$$9x - 4x + 4y - 9y = 42 - 62$$

$$5x - 5y = -20$$

$$x - y = -4$$

$$y - x = 4$$

detra 8