

TAREFA: MULTIPLICAÇÃO DE MATRIZES

01.

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

=

$$AB = \begin{matrix} -3-1 & 6+3 & 0-4 \\ 0+2 & 0-6 & 0+8 \end{matrix}$$

$$AB = \begin{bmatrix} -4 & 9 & -4 \\ 2 & -6 & 8 \end{bmatrix}$$

$$B_{2 \times 3} \cdot A_{2 \times 2} \quad \neq$$

02.

$$A = \begin{bmatrix} 5 & 2 & -1 \\ 7 & 4 & 3 \end{bmatrix}_{2 \times 3} \quad B = \begin{bmatrix} 3 & -2 \\ 1 & -3 \\ -4 & 0 \end{bmatrix}_{3 \times 2}$$

=

$$AB = \begin{matrix} 15+2+4 & -10-6+0 \\ 21+4-12 & -14-12+0 \end{matrix}$$

$$AB = \begin{bmatrix} 21 & -16 \\ 13 & -26 \end{bmatrix}$$

(8)

= A.A

TAREFA: MULTIPLICAÇÃO DE MATRIZES

$$\begin{matrix} B & = & A \\ 3 \times 2 & & 2 \times 3 \\ & = & F \end{matrix}$$

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

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

$$BA = \begin{matrix} 15 - 14 & 6 - 8 & -3 - 6 \\ 5 - 21 & 2 - 12 & -1 - 9 \\ -20 + 0 & -8 + 0 & 4 - 0 \end{matrix}$$

$$\begin{matrix} 5 - 21 & 2 - 12 & -1 - 9 \\ -20 + 0 & -8 + 0 & 4 - 0 \end{matrix}$$

$$\begin{matrix} -20 + 0 & -8 + 0 & 4 - 0 \end{matrix}$$

$$BA = \begin{bmatrix} 1 & -2 & -9 \\ 16 & -10 & -10 \\ 20 & -8 & 4 \end{bmatrix}$$

03.

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

2x2

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

2x2

$$A \cdot A^t = \begin{matrix} 1 + 0 & -1 + 0 \\ -1 + 0 & 1 + 4 \end{matrix}$$

$$\begin{matrix} -1 + 0 & 1 + 4 \end{matrix} = BA$$

$$A \cdot A^t = \begin{bmatrix} 1 & -1 \\ -1 & 5 \end{bmatrix}$$

(B)

04.

$$A = \begin{bmatrix} 1 & 2 & 5 \\ 3 & 4 & 6 \end{bmatrix}_{2 \times 3}$$

$$B = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}_{3 \times 1}$$

$$AB = 1+4+15 \\ 3+8+18$$

(A)

$$AB = \begin{bmatrix} 20 \\ 29 \end{bmatrix}$$

05.

$$a) A = \begin{bmatrix} 25 & 50 & 200 & 20 \\ 28 & 60 & 150 & 22 \end{bmatrix}_{2 \times 4}$$

$$B = \begin{bmatrix} 1,00 & 1,00 \\ 8,00 & 10,00 \\ 0,90 & 0,80 \\ 1,50 & 1,00 \end{bmatrix}_{4 \times 2}$$

b)

$$A_{11} = 25 \cdot 1 + 50 \cdot 8 + 200 \cdot 0,90 + 20 \cdot 1,50 \\ 25 + 400 + 180 + 30$$

$$A_{11} = 635$$

$$A_{12} = 25 \cdot 1 + 50 \cdot 10 + 200 \cdot 0,80 + 20 \cdot 1 \\ 25 + 500 + 160 + 20$$

$$A_{21} = 705$$

$$A_{21} = 28.1 + 60.8 + 150.0,90 + 22.1,50$$

$$28 + 480 + 135 + 33$$

$$A_{21} = 676$$

$$A_{22} = 28.1 + 60.10 + 150.0,80 + 22.1$$

$$28 + 600 + 120 + 22$$

$$A_{22} = 770$$

$$A.B = \begin{bmatrix} 635 & 705 \\ 676 & 770 \end{bmatrix}$$

(A)

Formecedor 01:

Formecedor 02:

$$\begin{array}{r} + 635 \\ 676 \\ \hline R\$ 1311,00 \end{array}$$

= B

$$\begin{array}{r} + 705 \\ 770 \\ \hline R\$ 1475 \end{array}$$

= A

Lucro:

$$\begin{array}{r} 1475 \\ - 1311 \\ \hline R\$ 164,00 \end{array}$$

06.

80

$$\begin{bmatrix} 0 & -1 \\ \alpha & 1 \end{bmatrix} \cdot \begin{bmatrix} \alpha & 1 \\ -1 & 0 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$A = \begin{bmatrix} 0 & -1 \\ \alpha & 1 \end{bmatrix}_{2 \times 2}$$

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

$$\begin{bmatrix} \alpha & 1 \\ \alpha + 0 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \end{bmatrix}$$

$$\alpha + 0 = 1$$

$$\alpha = 1$$

(E)

PARTICULARIDADES SOBRE PRODUTO MATRICIAL

01.

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \end{bmatrix}_{2 \times 3} \rightarrow A^t = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \\ a_{13} & a_{23} \end{bmatrix} \rightarrow (A^t)^t = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \end{bmatrix}$$

= para B p x q

$$(A^t)^t = A \text{ e } (B^t)^t$$

(A)

02.

$$(AB)C = A(BC) = ABC$$

(D) É uma particularidade associativa.

(C)

03.

$$A = \begin{bmatrix} 5 & 8 & 10 \\ 9 & 6 & 4 \end{bmatrix}$$

$$B = [x \ y \ z]$$

$$B^t = \begin{bmatrix} x \\ y \\ z \end{bmatrix}$$

$$C = A \cdot B$$

$$C = \begin{bmatrix} 5 & 8 & 10 \\ 9 & 6 & 4 \end{bmatrix} \cdot \begin{bmatrix} x \\ y \\ z \end{bmatrix} //$$

(B)

04. PARTICULARES SOBRE PRODUTO MATRICIAL

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} \cdot \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix} = \begin{bmatrix} -1 \\ 4 \\ 2 \end{bmatrix}$$

$\begin{matrix} 3 \times 1 & 3 \times 3 & 3 \times 1 \end{matrix}$
 $=$

$$A = a_{11} = x \quad a_{21} = y \quad a_{31} = z \quad A^t = [x \ y \ z]$$

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

$$\rightarrow A^t = [-1 \ 4 \ 2]$$

(C)