

Sejam todos bem vindos!

Iniciaremos as 13:50 hrs.

$$A = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 0 & 4 \\ 3 & 4 & -1 \end{pmatrix}$$

$$A^t = A$$

$$A = \begin{pmatrix} 2 & 3 & 1 \\ 3 & -2 & 2 \\ 5 & -1 & 0 \end{pmatrix} \text{ e } B = \begin{pmatrix} 0 & -1 & 2 \\ 1 & 3 & -1 \\ 3 & 4 & 0 \end{pmatrix}$$

a) $A+B$

b) $A \cdot B$

$$A = \begin{pmatrix} 2 & 3 & 1 \\ 3 & -2 & 2 \\ 5 & -1 & 0 \end{pmatrix}_{3 \times 3} \text{ e } B = \begin{pmatrix} 0 & -1 & 2 \\ 1 & 3 & -1 \\ 3 & 4 & 0 \end{pmatrix}_{3 \times 3}$$

$$A + B = \begin{pmatrix} 2+0 & 3+(-1) & 1+2 \\ 3+1 & -2+3 & 2+(-1) \\ 5+3 & -1+4 & 0+0 \end{pmatrix} = \begin{pmatrix} 2 & 2 & 3 \\ 4 & 1 & 1 \\ 8 & 3 & 0 \end{pmatrix}$$

$$\therefore A+B = \begin{pmatrix} 2 & 2 & 3 \\ 4 & 1 & 1 \\ 8 & 3 & 0 \end{pmatrix}$$

$$A = \begin{pmatrix} 2 & 3 & 1 \\ 3 & -2 & 2 \\ 5 & -1 & 0 \end{pmatrix} \text{ e } B = \begin{pmatrix} 0 & -1 & 2 \\ 1 & 3 & -1 \\ 3 & 4 & 0 \end{pmatrix}$$

3×3 3×3

$$A \cdot B = C_{3 \times 3}$$

$$2 \cdot 0 + 3 \cdot 1 + 1 \cdot 3 = c_{11}$$

$$c_{11} = \sum_{k=1}^3 a_{1k} b_{k1} = a_{11}b_{11} + a_{12}b_{21} + a_{13}b_{31}$$

$$A \cdot B = \begin{pmatrix} 2 & 3 & 1 \\ 3 & -2 & 2 \\ 5 & -1 & 0 \end{pmatrix} \begin{pmatrix} 0 & -1 & 2 \\ 1 & 3 & -1 \\ 3 & 4 & 0 \end{pmatrix}$$

$$= \begin{pmatrix} 2 \cdot 0 + 3 \cdot 1 + 1 \cdot 3 & 2 \cdot (-1) + 3 \cdot 3 + 1 \cdot 4 & 2 \cdot 2 + 3 \cdot (-1) + 0 \\ 3 \cdot 0 - 2 \cdot 1 + 2 \cdot 3 & 3 \cdot (-1) + (-2) \cdot 3 + 2 \cdot 4 & 3 \cdot 2 - 2 \cdot (-1) + 0 \\ 5 \cdot 0 - 1 \cdot 1 + 0 & 5 \cdot (-1) - 1 \cdot 3 + 0 & 5 \cdot 2 - 1 \cdot (-1) + 0 \end{pmatrix}$$

$$A \cdot B = \begin{pmatrix} 6 & 11 & 1 \\ 4 & -1 & 8 \\ -1 & -8 & 11 \end{pmatrix}$$