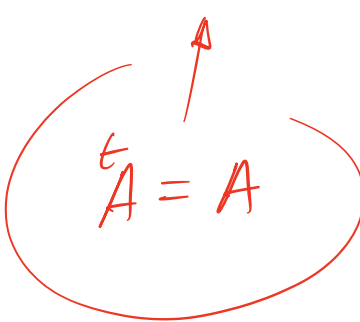


$$A \cdot B = \begin{pmatrix} 1 & 2 \\ 2 & -1 \end{pmatrix} \begin{pmatrix} -2 & 0 \\ -1 & 1 \end{pmatrix} = \begin{pmatrix} 1 \cdot (-2) + 2 \cdot (-1) & 1 \cdot 0 + 2 \cdot 1 \\ 2 \cdot (-2) + (-1) \cdot (-1) & 2 \cdot 0 + (-1) \cdot 1 \end{pmatrix}$$

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

$${}^t A \cdot B = {}^t \begin{pmatrix} 1 & 2 \\ 2 & -1 \end{pmatrix} \cdot \begin{pmatrix} -2 & 0 \\ -1 & 1 \end{pmatrix} = \begin{pmatrix} 1 & 2 \\ 2 & -1 \end{pmatrix} \begin{pmatrix} -2 & 0 \\ -1 & 1 \end{pmatrix}$$

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



$${}^t (A \cdot B) = {}^t \begin{pmatrix} -4 & 2 \\ -3 & -1 \end{pmatrix} = \begin{pmatrix} -4 & -3 \\ 2 & -1 \end{pmatrix}$$

$${}^t B \cdot {}^t A = {}^t \begin{pmatrix} -2 & 0 \\ -1 & 1 \end{pmatrix} \cdot {}^t \begin{pmatrix} 1 & 2 \\ 2 & -1 \end{pmatrix}$$

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

$$= {}^t (A \cdot B)$$

$${}^t\mathcal{B} + {}^t\mathcal{A} = \begin{pmatrix} -2 & -1 \\ 0 & 1 \end{pmatrix} + \begin{pmatrix} 1 & 2 \\ 2 & -1 \end{pmatrix}$$

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