

• Related problem with solution

ex 1 If $A = \begin{bmatrix} -2 \\ 4 \\ 5 \end{bmatrix}$, $B = [1, 3, -6]$

Verify that $(AB)' = B'A'$.

Solution \rightarrow

$$A = \begin{bmatrix} -2 \\ 4 \\ 5 \end{bmatrix}, B = [1, 3, -6]$$

Then $AB = \begin{bmatrix} -2 \\ 4 \\ 5 \end{bmatrix} [1, 3, -6]$

$$\Rightarrow \begin{bmatrix} -2 & -6 & 12 \\ 4 & 12 & -24 \\ 5 & 15 & -30 \end{bmatrix}$$

Now $A' = [-2, 4, 5]$, $B' = \begin{bmatrix} 1 \\ 3 \\ -6 \end{bmatrix}$

$$B'A' = \begin{bmatrix} 1 \\ 3 \\ -6 \end{bmatrix} [-2, 4, 5] = \begin{bmatrix} -2 & 4 & 5 \\ -6 & 12 & 15 \\ 12 & -24 & -30 \end{bmatrix}$$

Clearly $(AB)' = B'A'$