Multiplying Matrices

- Can only multiply matrices when the column in the first is equal to the row of the second

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$3\times 2 \quad 2\times 3$

- If possible, the answer matrix will have the "outside" dimensions

3×3

$A=\begin{bmatrix} 0 & 4 & 9 \\ -3 & 3 & 2 \end{bmatrix}$ $B=$ $C=$

Ex) $A\cdot B=\begin{bmatrix} 0 & 4 & 9 \\ -3 & 3 & 2 \end{bmatrix}\begin{bmatrix} 5 & 1 \\ -2 & 7 \\ 6 & 0 \end{bmatrix}=\begin{bmatrix} 0+-8+54 & 0+28+0 \\ -15+-6+12 & -3+21+0 \end{bmatrix}$

$2\times 3 \quad 3\times 2$

$\begin{bmatrix} 46 & 28 \\ -9 & 18 \end{bmatrix}$

Ex) $B\cdot C=\begin{bmatrix} 5 & 1 \\ -2 & 7 \\ 6 & 0 \end{bmatrix}\begin{bmatrix} 11 & -1 \\ 12 & 10 \end{bmatrix}=\begin{bmatrix} 55+12 & -5+10 \\ -22+84 & 2+70 \\ 66+0 & -6+6 \end{bmatrix}$

$3\times 2 \quad 2\times 2$

$\begin{bmatrix} 67 & 5 \\ 62 & 72 \\ 66 & -6 \end{bmatrix}$

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