

Matrix_Problems

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Multiplication

Multiplication by scalars

$[cA]_{ij}$

$$2 \begin{bmatrix} 3 & -2 & 4 \\ 1 & 2 & 1 \\ 6 & 4 & 4 \end{bmatrix} = \begin{bmatrix} 6 & -4 & 8 \\ 2 & 4 & 2 \\ 12 & 8 & 8 \end{bmatrix}$$

Matrix multiplication

Multiply A by B

$$A = \begin{bmatrix} 3 & -1 \\ 5 & 2 \end{bmatrix} \times B = \begin{bmatrix} 2 & -2 \\ 0 & 0 \end{bmatrix} = \begin{bmatrix} \dots & \dots \\ \dots & \dots \end{bmatrix}$$

[Comment by the student] Do you want to ask

$$A = \begin{bmatrix} 3 & -1 \\ 5 & 2 \end{bmatrix}, \quad B = \begin{bmatrix} 2 & -2 \\ 0 & 0 \end{bmatrix} \implies AB = \begin{bmatrix} \dots & \dots \\ \dots & \dots \end{bmatrix},$$

am I right? If so,

$$AB = \begin{bmatrix} 6 & -6 \\ 10 & -10 \end{bmatrix}.$$

Multiply A by C

$$A = \begin{bmatrix} 3 & -1 \\ 5 & 2 \end{bmatrix} \times C = \begin{bmatrix} 2 & -2 & 4 \\ 0 & 0 & 0 \end{bmatrix} = \begin{bmatrix} \dots & \dots & \dots \\ \dots & \dots & \dots \end{bmatrix}$$

Summation

Sum A and B

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

Sum C and D

$$C = \begin{bmatrix} 2 & 4 & -1 \\ 1 & 3 & 2 \end{bmatrix} + D = \begin{bmatrix} 1 & -1 & 3 \\ -2 & 2 & -3 \end{bmatrix} =$$