

Math Sheet

Name _____ Score _____ / 6 Teacher _____ Date _____

Mixed Matrix Operations

Evaluate each expression. If it is undefined, explain which dimensions do not match.

1. $A \times B$

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

2. $-1A$

$$A = \begin{bmatrix} 1 \end{bmatrix}$$

3. $A \times B$

$$A = \begin{bmatrix} 5 & 0 & 4 \\ -3 & -2 & -1 \\ 0 & 6 & -3 \end{bmatrix} \quad B = \begin{bmatrix} -5 & -1 \end{bmatrix}$$

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Mixed Matrix Operations

Evaluate each expression. If it is undefined, explain which dimensions do not match.

4. $A \times B$

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

5. $(A + B) + C$

$$A = \begin{bmatrix} 4 & -4 \\ -4 & 2 \\ 4 & -1 \end{bmatrix} \quad B = \begin{bmatrix} 3 & 3 \end{bmatrix} \quad C = \begin{bmatrix} -1 & 6 \\ 2 & 6 \\ 0 & 0 \end{bmatrix}$$

6. $(-2A) + 1B$

$$A = \begin{bmatrix} -6 & -1 & -5 & -4 \\ -5 & 4 & -2 & 3 \end{bmatrix} \quad B = \begin{bmatrix} 6 & -1 & 5 & 5 \\ 1 & -5 & -6 & -2 \end{bmatrix}$$

Mixed Matrix Operations

Answer Key

Evaluate each expression. If it is undefined, explain which dimensions do not match.

1. $A \times B$

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

Answer

$$\begin{bmatrix} 25 \\ -30 \\ -9 \end{bmatrix}$$

Result dimensions: 3×1

2. $-1A$

$$A = \begin{bmatrix} 1 \end{bmatrix}$$

Answer

$$\begin{bmatrix} -1 \end{bmatrix}$$

Result dimensions: 1×1

3. $A \times B$

$$A = \begin{bmatrix} 5 & 0 & 4 \\ -3 & -2 & -1 \\ 0 & 6 & -3 \end{bmatrix} \quad B = \begin{bmatrix} -5 & -1 \end{bmatrix}$$

Answer

Undefined: $(3 \times 3) \times (1 \times 2)$. Multiplication needs matching inner dimensions.

Mixed Matrix Operations

Answer Key

Evaluate each expression. If it is undefined, explain which dimensions do not match.

4. $A \times B$

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

Answer

Undefined: $(2 \times 2) \times (1 \times 1)$. Multiplication needs matching inner dimensions.

5. $(A + B) + C$

$$A = \begin{bmatrix} 4 & -4 \\ -4 & 2 \\ 4 & -1 \end{bmatrix} \quad B = \begin{bmatrix} 3 & 3 \end{bmatrix} \quad C = \begin{bmatrix} -1 & 6 \\ 2 & 6 \\ 0 & 0 \end{bmatrix}$$

Answer

Undefined: $(3 \times 2) + (1 \times 2)$. Addition and subtraction need equal matrix dimensions.

6. $(-2A) + 1B$

$$A = \begin{bmatrix} -6 & -1 & -5 & -4 \\ -5 & 4 & -2 & 3 \end{bmatrix} \quad B = \begin{bmatrix} 6 & -1 & 5 & 5 \\ 1 & -5 & -6 & -2 \end{bmatrix}$$

Answer

$$\begin{bmatrix} 18 & 1 & 15 & 13 \\ 11 & -13 & -2 & -8 \end{bmatrix}$$

Result dimensions: 2×4