

HAT 9/11/17
Matrix Operations

Name: _____

1. Given matrices A, B and C. Complete each operation. If the operation is not possible, then explain why.

$$A = \begin{bmatrix} -2 & 5 \\ 7 & -10 \end{bmatrix}$$

$$B = [4 \quad -5 \quad -1]$$

$$C = \begin{bmatrix} -8 & -3 \\ 4 & 2 \end{bmatrix}$$

a. $A + C$

b. $3B$

c. $C - A$

d. $A - B$

e. $A \bullet C$

f. $C \bullet A$

g. $A \bullet B$

2. Solve for the variables.

$$\begin{bmatrix} 2 & -3 & x \\ 1 & 0 & -8 \end{bmatrix} \cdot \begin{bmatrix} 4 & y \\ -2 & -1 \\ 6 & -6 \end{bmatrix} = \begin{bmatrix} 38 & w \\ z & 43 \end{bmatrix}$$

3. The following multiplication problem contains one incorrect entry in matrix B. Find and correct the error.

$$A \bullet B = A \bullet B$$
$$\begin{bmatrix} -2 & 3 \\ 0 & -8 \end{bmatrix} \bullet \begin{bmatrix} -1 & 9 \\ -2 & 3 \end{bmatrix} = \begin{bmatrix} 14 & -9 \\ -32 & -24 \end{bmatrix}$$

4. Consider the matrices $A = \begin{bmatrix} 1 & -2 \\ 3 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & 4 \\ 2 & 3 \end{bmatrix}$.

a. Find the product $A \cdot B$. Show your work.

b. Find a matrix C such that $B + C = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$.

c. Find a matrix D such that $B \cdot D = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$.