

### Homework: Matrix Operations

In Problems 1-4, find the following matrices: a)  $A + B$     b)  $A - B$   
c)  $-3A$     d)  $2A - 5B$

1. $A = \begin{bmatrix} 2 & -3 \\ 4 & -1 \end{bmatrix}, B = \begin{bmatrix} -4 & -2 \\ 5 & 7 \end{bmatrix}$	2. $A = \begin{bmatrix} 1 & -7 & 3 \\ 4 & -4 & 1 \end{bmatrix}, B = \begin{bmatrix} -8 & -2 & 4 \\ 11 & -2 & 5 \end{bmatrix}$
3. $A = \begin{bmatrix} 2 \\ -3 \\ 5 \\ -1 \end{bmatrix}, B = \begin{bmatrix} -8 \\ 10 \\ -4 \\ 2 \end{bmatrix}$	4. $A = \begin{bmatrix} 2 & 0 & -3 \\ 4 & -1 & 5 \\ 7 & 2 & -4 \end{bmatrix}, B = \begin{bmatrix} 1 & -7 & 0 \\ 2 & -1 & 3 \\ 4 & 9 & -1 \end{bmatrix}$

In Problems 5-8, find (if possible) the following matrices. a)  $AB$     b)  $BA$

5. $A = \begin{bmatrix} 3 & -1 \\ -5 & 2 \end{bmatrix}, B = \begin{bmatrix} 4 & 1 \\ -3 & -8 \end{bmatrix}$	6. $A = \begin{bmatrix} -2 & 3 & -5 & 1 \end{bmatrix}, B = \begin{bmatrix} 6 \\ 2 \\ -3 \\ 4 \end{bmatrix}$
7. $A = \begin{bmatrix} 2 & -1 & 3 \\ -5 & 0 & -8 \\ 1 & 2 & 0 \end{bmatrix}, B = \begin{bmatrix} -4 & 0 & 1 \\ 5 & -2 & 3 \\ 7 & -1 & -9 \end{bmatrix}$	8. $A = \begin{bmatrix} 2 & 1 & -4 \\ 5 & -1 & 6 \end{bmatrix}, B = \begin{bmatrix} -7 & 2 \\ -1 & 0 \\ 3 & 8 \end{bmatrix}$
9. $A = \begin{bmatrix} 3 & -2 & -1 & 0 \\ 5 & 1 & -7 & 1 \end{bmatrix}, B = \begin{bmatrix} -6 & 1 \\ -2 & 3 \\ 0 & -4 \\ 5 & 1 \end{bmatrix}$	

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In Problems 10-13, perform the indicated matrix operations given that A, B, and C are defined as follows or state that the operation is not possible.

$$A = \begin{bmatrix} -7 & 1 \\ 2 & -3 \\ 0 & 4 \end{bmatrix}, B = \begin{bmatrix} 2 & -3 \\ 5 & 0 \end{bmatrix}, C = \begin{bmatrix} 1 & -1 \\ 2 & 4 \end{bmatrix}$$

10. $3B + 2C$	11. $BC + CB$
12. $B - A$	13. $A(BC)$