Addition, Subtraction, Scalar Multiplication of Matrices

Add the following matrices.

1. $\begin{bmatrix} 4 & 9 & -1 \\ 0 & 3 & 2 \\ -3 & 1 & 5 \end{bmatrix} + \begin{bmatrix} 6 & -2 & 1 \\ -1 & -2 & 4 \\ 5 & -8 & 6 \end{bmatrix}$

2. $\begin{bmatrix} -4 & 7 \\ 8 & 5 \end{bmatrix} + \begin{bmatrix} 5 & -2 \\ -1 & 1 \end{bmatrix}$

Subtract the following matrices.

3. $\begin{bmatrix} 3 & 6 & -1 \\ -2 & 5 & -4 \end{bmatrix} - \begin{bmatrix} 8 & 9 & 4 \\ -2 & 7 & 3 \end{bmatrix}$

4. $\begin{bmatrix} 6 & 8 \\ -7 & 4 \\ 5 & -2 \end{bmatrix} - \begin{bmatrix} -1 & 0 \\ -2 & -8 \\ -3 & 6 \end{bmatrix}$

Multiply the following matrices.

5. $-2 \begin{bmatrix} 6 & -4 & -1 \\ 3 & 5 & 7 \\ 0 & 2 & 0 \end{bmatrix}$

6. $\frac{1}{2} \begin{bmatrix} -2 & 0 \\ 9 & 6 \\ 8 & -5 \end{bmatrix}$

Simplify the following expression.

7. $2 \begin{bmatrix} 3 & 5 & 6 \\ 1 & -1 & -2 \\ -2 & 4 & 4 \end{bmatrix} + 5 \begin{bmatrix} 0 & 4 & 1 \\ -2 & 3 & -2 \\ 3 & -2 & 6 \end{bmatrix}$

8. $3 \begin{bmatrix} -4 & 2 \\ 5 & 0 \\ 1 & -1 \end{bmatrix} - 2 \begin{bmatrix} 3 & 0 \\ 4 & -1 \\ -2 & 5 \end{bmatrix}$