

**Trig & 3-Space
Matrices Review**

Given the following Matrices: $\mathbf{A} = \begin{pmatrix} 3 & 2 & 1 \\ 5 & 4 & -6 \end{pmatrix}$ $\mathbf{B} = \begin{pmatrix} -4 & 2 & 6 \\ 3 & 1 & -8 \end{pmatrix}$ $\mathbf{C} = \begin{pmatrix} 3 & -1 \\ 4 & 6 \end{pmatrix}$

1) Solve the following using the matrices above.

a) $2\mathbf{A}+3\mathbf{B}$

b) $\mathbf{A}-\mathbf{B}$

c) $\mathbf{A}-3\mathbf{B}$

d) \mathbf{C}^2

e) $3\mathbf{C}$

f) $2\mathbf{C}+\mathbf{C}^2$

2) Multiply:

a) $\begin{pmatrix} 4 & 6 & 2 \end{pmatrix} \begin{pmatrix} 0 \\ 1 \\ 8 \end{pmatrix}$

b) $\begin{pmatrix} 2 & 3 & -1 \\ 0 & 1 & 8 \end{pmatrix} \begin{pmatrix} 0 & 5 \\ 1 & 6 \\ 3 & -1 \end{pmatrix}$

c) $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 5 \\ 6 \end{pmatrix}$

d) $\begin{pmatrix} 1 & 2 \\ 5 & 3 \\ 4 & -2 \end{pmatrix} \begin{pmatrix} -3 & 4 & 1 \\ 2 & 5 & -1 \end{pmatrix}$

3) Find the Inverse of the following matrices using the determinant method:

a) $\begin{pmatrix} 1 & 1 \\ 3 & 1 \end{pmatrix}$

b) $\begin{pmatrix} 4 & 2 \\ -1 & 7 \end{pmatrix}$

4) Find the Inverse of the following matrices using the unit matrix method:

a) $\begin{pmatrix} 9 & -4 \\ -2 & 1 \end{pmatrix}$

b) $\begin{pmatrix} 12 & 10 \\ 7 & 6 \end{pmatrix}$

5) Solve for "x" and "y" using matrices:

a) $2x + 3y = 16$
 $5x - 2y = 2$

$2x - 3y + z = -9$
b) $2x - 4y + 3z = -16$
 $4x + y - 3z = 13$

$3x - 2y + 5z = 1$
c) $4x + 5y - 3z = 17$
 $7x - 3y + 2z = 36$