Algebra II B 11.1-11.3 Review   **Name**_____

Give the dimensions of the matrix.

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

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

3. $\begin{bmatrix} 5 & 6 & 1 \end{bmatrix}$

Use the following matrices to perform the indicated operation, or explain why it cannot be done. (No Calculator!)

$A = \begin{bmatrix} 2 & 0 & -1 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 2 & 4 \\ -2 & 1 & 0 \end{bmatrix}$ $C = \begin{bmatrix} 0 & 3 \\ 2 & -1 \\ -2 & 1 \end{bmatrix}$ $D = \begin{bmatrix} 1 & 4 \\ 0 & -1 \\ 2 & 0 \end{bmatrix}$ $E = \begin{bmatrix} 2 & -1 \\ -5 & 6 \end{bmatrix}$ $F = \begin{bmatrix} 4 & 0 & 2 \\ -1 & 1 & 0 \\ 7 & 5 & 0 \end{bmatrix}$ $G = \begin{bmatrix} 4 & -3 \\ 2 & 0 \end{bmatrix}$

4. C + D

5. 2E

6. 3C + 2D

$A = \begin{bmatrix} 2 & 0 & -1 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 2 & 4 \\ -2 & 1 & 0 \end{bmatrix}$ $C = \begin{bmatrix} 0 & 3 \\ 2 & -1 \\ -2 & 1 \end{bmatrix}$ $D = \begin{bmatrix} 1 & 4 \\ 0 & -1 \\ 2 & 0 \end{bmatrix}$ $E = \begin{bmatrix} 2 & -1 \\ -5 & 6 \end{bmatrix}$ $F = \begin{bmatrix} 4 & 0 & 2 \\ -1 & 1 & 0 \\ 7 & 5 & 0 \end{bmatrix}$ $G = \begin{bmatrix} 4 & -3 \\ 2 & 0 \end{bmatrix}$

7. AB

8. DB

9. GE

10. BC

11. BF

12. FC

$$A = \begin{bmatrix} 2 & 0 & -1 \end{bmatrix} \quad B = \begin{bmatrix} 1 & 2 & 4 \\ -2 & 1 & 0 \end{bmatrix} \quad C = \begin{bmatrix} 0 & 3 \\ 2 & -1 \\ -2 & 1 \end{bmatrix} \quad D = \begin{bmatrix} 1 & 4 \\ 0 & -1 \\ 2 & 0 \end{bmatrix} \quad E = \begin{bmatrix} 2 & -1 \\ -5 & 6 \end{bmatrix} \quad F = \begin{bmatrix} 4 & 0 & 2 \\ -1 & 1 & 0 \\ 7 & 5 & 0 \end{bmatrix} \quad G = \begin{bmatrix} 4 & -3 \\ 2 & 0 \end{bmatrix}$$

Use the following formula to find the inverse. If **A**= $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$, then **A⁻¹**= $\frac{1}{ab-cd}\begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$

13. G^{-1}

14. E^{-1}

Solve the following system using matrices.

15.
$x - 2y = 14$
$2x + 5y = -17$

16.
$6x - y = 0$
$-3x - 7y = 45$

Application

17. A 100 point college entrance exam consists of **32 problems**. There are two types of problems. **Type A problems are worth 5 points** and **type B are work 2 points**. Write a system of equations, then use matrices to determine how many of each type of problem are on the test.

Number of type A:_____Number of Type B:_____