NON-CALCULATOR SECTION

Find the determinant.

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

2. $\begin{bmatrix} 10 & 4 & 6 \\ 2 & -3 & 1 \\ -3 & 2 & 0 \end{bmatrix}$

3. Multiply if possible. $\begin{bmatrix} -1 & 4 & -2 \\ 1 & -1 & -4 \end{bmatrix} \bullet \begin{bmatrix} -6 & 2 & -5 \\ 1 & -4 & 2 \\ 3 & 0 & -1 \end{bmatrix}$

Find the inverse, if it exists.

4. $\begin{bmatrix} 21 & 12 \\ 7 & 4 \end{bmatrix}$

5. Find the area of a triangle with vertices (3, -2), (-1, -7), (4, 11)

Name the dimensions of the matrices.

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

7. $\begin{bmatrix} 8 \\ 9 \\ -2 \\ 3 \end{bmatrix}$

8. $\begin{bmatrix} 2 & 43 \end{bmatrix}$

Perform indicated operations. #12-16

9. $-5\begin{bmatrix} 6 & 2 & 0 \\ 4 & -11 & 6 \end{bmatrix}$

10. $4\begin{bmatrix} -8 & 10 \\ 0 & -4 \end{bmatrix} - 5\begin{bmatrix} -1 & 4 \\ 4 & 7 \end{bmatrix}$

11. $\begin{bmatrix} -6 & 9 \\ 2 & -1 \end{bmatrix} \bullet \begin{bmatrix} 5 & -2 & 4 \\ 1 & 0 & -5 \end{bmatrix}$

12. $\begin{bmatrix} 7 & 0 & -8 \\ 10 & -2 & 1 \end{bmatrix} \bullet \begin{bmatrix} 3 & 2 \\ 4 & 0 \end{bmatrix}$

13. $8\begin{bmatrix} 2 \\ -1 \\ 4 \end{bmatrix} + 3\begin{bmatrix} 4 \\ -6 \\ 7 \end{bmatrix} - \begin{bmatrix} -1 \\ 8 \\ -6 \end{bmatrix}$

Solve for x.
Hint: There are bars, not brackets, around the matrices.

14. $\begin{vmatrix} 5 & -4 \\ -x & 4 \end{vmatrix} = 34$

15. $\begin{vmatrix} 3 & -1 \\ 3 & 4x \end{vmatrix} = 21$

16. Write the system as a matrix equation. DO NOT SOLVE!

$2w - x + 5y - z = 1$

$x + 3y - 6z = 2$

$-3w - 9z = 12$

$2z = 6$

Solve the system using matrices. Write the solutions as ordered pairs.

17. $2x + 3y = 7$
$4x - 4y = 4$

18. $-5x - y = 2$
$10x + 3y = 1$

CALCULATOR SECTION – Also study the word problems from previous HW

Find the inverse if it exists.

19. $\begin{bmatrix} -7 & -1 & 2 \\ 3 & 6 & 4 \\ 0 & 11 & -2 \end{bmatrix}$

20. Write as a matrix equation & solve.

$3x + 4y + 2z = 12$

$-2x - 3y - 4z = -12$

$5x + 5y + 6z = 8$

21. Write as a matrix equation & solve.

$2x + z = 6$

$3x - 2y + 4z = 13$

$-y - 3z = -15$