

1) Perform the indicated operations

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

2) Multiply the following matrices

$$\begin{bmatrix} 12 & 1 \\ -1 & 5 \end{bmatrix} \begin{bmatrix} 1 & -2 \\ x & 4 \\ 0 & -1 \end{bmatrix}$$

3) If a 3 x 2 matrix is multiplied by a 2 x 5 matrix what are the dimensions of the resulting matrix? _____

4) In the following matrix what is the element in the a_{24} position? _____

$$\begin{bmatrix} 1 & 9 & 8 & 7 \\ -7 & 6 & 5 & 12 \\ 4 & -6 & -8 & 76 \\ 43 & 12 & 67 & 203 \end{bmatrix}$$

5) What is the result of multiplying a 3x3 matrix with its inverse? _____

6) Given the following Gaussian reduced matrices of variables x, y, and z. Find the solutions.

$$\text{a) } \left[\begin{array}{ccc|c} 1 & 0 & 0 & 2 \\ 0 & 2 & 9 & 3 \\ 0 & 0 & 0 & -5 \end{array} \right]$$

$$x = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

$$z = \underline{\hspace{2cm}}$$

$$\text{b) } \left[\begin{array}{ccc|c} 1 & 0 & 0 & 2 \\ 0 & 2 & 9 & 4 \\ 0 & 0 & 1 & 0 \end{array} \right]$$

$$x = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

$$z = \underline{\hspace{2cm}}$$

$$\text{c) } \left[\begin{array}{ccc|c} 1 & 1 & 2 & 2 \\ 0 & 1 & 9 & 7 \\ 0 & 0 & 0 & 0 \end{array} \right]$$

$$x = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

$$z = \underline{\hspace{2cm}}$$

c) Which of the above problems has an inconsistent solution? _____

d) Which of the above problems has an dependent solution? _____

7) Solve the following system **algebraically**. Use the elimination or substitution method. Show all steps.

$$\begin{aligned}x + 3y &= 11 \\ 3x - y &= 3\end{aligned}$$

8) Solve the following system using Gaussian Reduction. Show work!!

$$\begin{aligned}x + 2y - z &= 4 \\ 2x - y + 3z &= 11 \\ x - y + 2z &= 7\end{aligned}$$

9) Solve the following system using inverse matrices . Show matrices setup.

$$x + 4y - z = 0$$

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

$$5x - 14y + 3z = 1$$

10) Lillian Vernons, which sells toys, clothing, and briefcases, charges \$4 for shipping toys, \$6 for shipping clothing, and \$7 for shipping briefcases. One week shipping charges for 600 orders totaled \$3340. The difference between the number of toys shipped and the number of briefcases is 80. Find the number of orders shipped of each product for that particular week.. Show all setups. Hint let x = number of toys.

Use any method!!!! Explain