

Sections 8.1 – 8.3 Review

1. Determine the order of A.

$$A = \begin{bmatrix} 1 & 2 & 0 & 6 \\ 3 & 1 & 2 & -8 \\ -1 & -5 & -3 & 0 \end{bmatrix}$$

2. Write the system as an augmented matrix.

$$x - y - 4z = 14$$

$$-x + y + 2z = -10$$

$$3x - 2y + z = 15$$

3. Replace row 2 of the augmented matrix from question 2 with row 1 + row 2. (R1 + R2)

4. Replace row 3 of the augmented matrix in questions 2 and 3 with -3R1 + R3.

For exercises 5 – 8 use the following matrices to find the following if possible.

$$A = \begin{bmatrix} 1 & -1 & 3 \\ 0 & 6 & 9 \end{bmatrix}$$

$$B = \begin{bmatrix} -2 & 0 & 5 \\ -3 & 4 & -7 \end{bmatrix}$$

$$C = \begin{bmatrix} 3 & 0 \\ 2 & 1 \\ -1 & -2 \end{bmatrix}$$

5. $A + B$

6. $3A$

7. $A - C$

8. BC

Write the system of linear equations as a matrix equation, $AX = B$. Use Gauss-Jordan elimination on $[A : I]$ to solve the matrix X.

9. $-x_1 + x_2 = 4$
 $-2x_1 + x_2 = 0$

Write the system of linear equations as a matrix equation, $AX = B$. Use the inverse matrix below to solve the system.

10. $x_1 - 2x_2 + 3x_3 = 9$
 $-x_1 + 3x_2 - x_3 = -6$
 $2x_1 - 5x_2 + 5x_3 = 17$

$$A^{-1} = \begin{bmatrix} 10 & -5 & -7 \\ 3 & -1 & -2 \\ -1 & 1 & 1 \end{bmatrix}$$

Find the inverse of the matrix if it exists.

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

12. $\begin{bmatrix} 2 & -3 \\ 3 & -4 \end{bmatrix}$