

Mutivariable Linear Systems and Row Operations Date_____ Period____

Write the augmented matrix for each system of linear equations.

1)
$$\begin{aligned} 5x - 2y &= -6 \\ -x + 5y &= 15 \end{aligned}$$

2)
$$\begin{aligned} -3x - 4y &= 20 \\ 3x - 5y &= 25 \end{aligned}$$

3)
$$\begin{aligned} x + 3y - 2z &= -11 \\ -2x - 5y + 3z &= 17 \\ 4x - z &= 1 \end{aligned}$$

4)
$$\begin{aligned} -2x - 4y - 5z &= 11 \\ -x + 4z &= -25 \\ -3x - 5y + z &= -25 \end{aligned}$$

Write the system of linear equations for each augmented matrix.

5)
$$\left[\begin{array}{cc|c} 3 & 4 & 1 \\ -3 & 2 & 23 \end{array} \right]$$

6)
$$\left[\begin{array}{cc|c} -5 & 1 & -16 \\ 1 & 5 & -2 \end{array} \right]$$

7)
$$\left[\begin{array}{ccc|c} 3 & -1 & 1 & 8 \\ 0 & -1 & 2 & -10 \\ -2 & 2 & 2 & -8 \end{array} \right]$$

8)
$$\left[\begin{array}{ccc|c} -5 & -4 & 3 & -8 \\ 1 & 0 & 4 & 0 \\ 3 & -5 & 5 & -10 \end{array} \right]$$

Find the reduced row-echelon form for each system of linear equations.

9)
$$\begin{aligned} 5x - 4y &= -10 \\ -x + y &= 2 \end{aligned}$$

10)
$$\begin{aligned} 4x - 2y &= 2 \\ 5x - 2y + z &= 7 \\ 3x + 4y - z &= 3 \end{aligned}$$

11)
$$\begin{aligned} x - y + 2z &= -1 \\ -3x + 3y + 5z &= 3 \\ 2x - 2y &= -2 \end{aligned}$$

12)
$$\begin{aligned} 3x + 3y &= -12 \\ -4x - 2y + 2z &= -14 \\ x + 3y + 2z &= 11 \end{aligned}$$

Solve each system of linear equations using Gaussian or Gauss-Jordan elimination.

13)
$$\begin{aligned} -3x - 4y &= -5 \\ 4x + 3y &= 9 \end{aligned}$$

14)
$$\begin{aligned} 2x + 5y + z &= -12 \\ -x + 4y + 3z &= -4 \\ 5x - 2z &= -13 \end{aligned}$$

15)
$$\begin{aligned} 3x + 2y - 3z &= 13 \\ 4x + 4z &= 12 \\ -2x - y + z &= -8 \end{aligned}$$

16)
$$\begin{aligned} -2x - 4y + 4z &= 14 \\ 4x + 2y + 4z &= -4 \\ x + 2z &= -2 \end{aligned}$$