

Solving Systems of Equations using Matrices

Date _____

Period _____

Solve each system by elimination using matrices.

1) $-7x - 6y = -20$

$-10x - y = -21$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 2 \\ 1 \end{bmatrix}$$

2) $-18x + 7y = 17$

$9x + 2y = 19$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 \\ 5 \end{bmatrix}$$

3) $-4x + 6y = -30$

$-x + 2y = -12$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -6 \\ -9 \end{bmatrix}$$

4) $-20x + 9y = 1$

$-10x + 6y = 14$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 4 \\ 9 \end{bmatrix}$$

5) $x - 10y = -3$

$7x - 5y = -21$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -3 \\ 0 \end{bmatrix}$$

6) $4x + 3y = 17$

$-8x - y = 1$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -1 \\ 7 \end{bmatrix}$$

7) $2x + 14y = 26$

$-6x + 7y = -29$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 4 \\ 1 \end{bmatrix}$$

8) $9x + 5y = -11$

$x + 2y = -7$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 \\ -4 \end{bmatrix}$$

$$\begin{aligned} 9) \quad & 2x - 6y = 20 \\ & 8x - 9y = 5 \end{aligned}$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -5 \\ -5 \end{bmatrix}$$

$$\begin{aligned} 10) \quad & 3x + 3y = 6 \\ & -12x + 6y = -6 \end{aligned}$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$$

$$\begin{aligned} 11) \quad & -4r + 6s + 4t = 28 \\ & 3r - 2s - 4t = -21 \\ & -4r - 2s + 5t = 17 \end{aligned}$$

$$\begin{bmatrix} r \\ s \\ t \end{bmatrix} = \begin{bmatrix} 1 \\ 2 \\ 5 \end{bmatrix}$$

$$\begin{aligned} 12) \quad & -4x + 6y + 4z = -24 \\ & 2y + 2z = -6 \\ & 3x - 2y + 2z = 8 \end{aligned}$$

$$\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 2 \\ -2 \\ -1 \end{bmatrix}$$

$$\begin{aligned} 13) \quad & -3x + 2y + 6z = -15 \\ & -2x - 4y - 6z = -10 \\ & 4x - 3y + 5z = 20 \end{aligned}$$

$$\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 5 \\ 0 \\ 0 \end{bmatrix}$$

$$\begin{aligned} 14) \quad & -3a - 5b + 5c = 30 \\ & -2a + 5b + 2c = -26 \\ & a - 5b + 6c = 7 \end{aligned}$$

$$\begin{bmatrix} a \\ b \\ c \end{bmatrix} = \begin{bmatrix} -5 \\ -6 \\ -3 \end{bmatrix}$$

$$\begin{aligned} 15) \quad & -5x - y - 4z = 11 \\ & -2x - 6y - 4z = -18 \\ & -2x + 6y + z = 30 \end{aligned}$$

$$\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -3 \\ 4 \\ 0 \end{bmatrix}$$

$$\begin{aligned} 16) \quad & 6r - 3s - 3t = 30 \\ & 6r + 5s + 2t = -16 \\ & 3r - 5s - t = 19 \end{aligned}$$

$$\begin{bmatrix} r \\ s \\ t \end{bmatrix} = \begin{bmatrix} 1 \\ -2 \\ -4 \end{bmatrix}$$