

Warm Up

Solve the system using Substitution

$$5x + y = 6$$

$$3 - x = 0$$

Solving Systems using Elimination

$$\begin{array}{r}
 2x + y = 5 \\
 + 3x - y = 20 \\
 \hline
 5x = 25 \\
 x = 5
 \end{array}$$

$2(5) + y = 5$
 $10 + y = 5$
 $y = -5$

$(5, -5)$

$$\begin{array}{r}
 -2x - 9y = -25 \\
 -(-4x - 9y = -23) \\
 \hline
 2x = -2 \\
 x = -1
 \end{array}$$

$-2(-1) - 9y = -25$
 $-2 - 9y = -25$
 $-2 \quad -25$
 $-2 \quad -2$
 $-9y = -27$
 $y = 3$

$(-1, 3)$

Solving Systems using Elimination

$$\begin{array}{r}
 -4x - 2y = -12 \\
 + 4x + 8y = -24 \\
 \hline
 6y = -36 \\
 y = -6
 \end{array}$$

(6, -6)

$$\begin{array}{r}
 -4x - 2(-6) = -12 \\
 -4x + 12 = -12 \\
 -4x = -24 \\
 x = 6
 \end{array}$$

$$\begin{array}{r}
 7x + 2y = 24 \\
 - (8x + 2y = 30) \\
 \hline
 -x = -6 \\
 x = 6
 \end{array}$$

(6, -9)

$$\begin{array}{r}
 7(6) + 2y = 24 \\
 42 + 2y = 24 \\
 -42 \\
 2y = -18 \\
 \frac{2y}{2} = \frac{-18}{2} \\
 y = -9
 \end{array}$$

Solving Systems using Elimination

Different Coefficients

$$\begin{array}{r} 5(6x + 3y = 6) \\ 3(8x + 5y = -12) \\ \hline 30x + 15y = 30 \\ - (24x + 15y = -36) \\ \hline \end{array}$$

$$6x = 66$$

$$x = 11 \quad (11, -20)$$

$$8(11) + 5y = -12$$

$$88 + 5y = -12$$

$$5y = -100 \quad y = -20$$

$$\begin{array}{r} 8(-5x + y = -3) \\ 3x - 8y = 24 \\ + \quad -40x + 8y = -24 \\ \hline \end{array}$$

$$-37x = 0$$

$$x = 0$$

$$-5(0) + y = -3$$

$$y = -3$$

$$(0, -3)$$

Solving Systems using Elimination

$$2x + 4y = 6$$

$$-x - 2y = -3$$

$$-4x - 15y = -17$$

$$5y = x - 13$$

Solving Systems using Elimination

$$2x - 6 = -8y$$

$$-20y + 15 = 5x$$

$$6 + 2x - y = 3$$

$$-3 - 7y + 2x = 12x$$