

get one equation set equal to a variable.

Extra Practice

Solving Systems with Substitution (Day 2)

1.) $y - x = 1$
 $y = 2x - 1$

$$\begin{array}{r} (2x-1) - x = 1 \\ x - 1 = 1 \\ +1 \quad +1 \\ \hline x = 2 \end{array}$$

$$\begin{cases} y - 2 = 1 \\ +2 \quad +2 \\ \hline y = 3 \end{cases} \quad \boxed{(2, 3)}$$

2.) $x + 2y = 21$
 $3y - x = 29$

$$x = 21 - 2y$$

$$\begin{array}{r} 3y - 1(21 - 2y) = 29 \\ (3y) - 21 + 2y = 29 \\ 5y - 21 = 29 \\ +21 \quad +21 \\ \hline 5y = 50 \\ \frac{5y}{5} = \frac{50}{5} \\ y = 10 \end{array}$$

$$\begin{cases} x + 2(10) = 21 \\ x + 20 = 21 \\ -20 \quad -20 \\ \hline x = 1 \end{cases} \quad \boxed{(1, 10)}$$

3.) $x = -3y$
 $7x - 2y = -69$

$$\begin{array}{r} 7(-3y) - 2y = -69 \\ -21y - 2y = -69 \\ -23y = -69 \\ \frac{-23y}{-23} = \frac{-69}{-23} \\ y = 3 \end{array}$$

$$\begin{cases} x = -3(3) \\ x = -9 \end{cases} \quad \boxed{(-9, 3)}$$

4.) $2x + y = 11$
 $-x + 2y = 2$

5.) $y + 11x = 5$
 $y - 10x = -37$

$$y = 5 - 11x$$

$$\begin{array}{r} 5 - 11x - 10x = -37 \\ 5 - 21x = -37 \\ -5 \quad -5 \\ \hline -21x = -42 \\ \frac{-21x}{-21} = \frac{-42}{-21} \\ x = 2 \end{array}$$

$$\begin{cases} y + 11(2) = 5 \\ y + 22 = 5 \\ -22 \quad -22 \\ \hline y = -17 \end{cases} \quad \boxed{(2, -17)}$$