

Algebra I

5.3 HW

$$\begin{array}{r} \#7. \quad -3x - 5y = -7 \\ \quad -4x + 5y = 14 \\ \hline \quad -7x = 7 \\ \quad \quad -7 \quad -7 \end{array}$$

$$x = -1$$

$$\begin{array}{r} -3(-1) - 5y = -7 \\ 3 - 5y = -7 \\ \quad -3 \quad -3 \end{array}$$

$$\frac{-5y}{-5} = \frac{-10}{-5}$$

$$y = 2$$

Answer:

$$(-1, 2)$$

$$\begin{array}{r} \#8. \quad 4x - 9y = -21 \\ \quad -4x - 3y = 9 \\ \hline \quad -12y = -12 \\ \quad \quad -12 \quad -12 \end{array}$$

$$y = 1$$

$$\begin{array}{r} -4x - 3(1) = 9 \\ -4x - 3 = 9 \\ \quad +3 \quad +3 \end{array}$$

$$\frac{-4x}{-4} = \frac{12}{-4}$$

$$x = -3$$

Answer: $(-3, 1)$

$$\begin{array}{r} \#9. \quad -y - 10 = 6x \\ \quad 5x + y = -10 \end{array}$$

rewrite

$$\begin{array}{r} 5x + y = -10 \\ -6x - y = 10 \end{array}$$

Get in correct form

$$\begin{array}{r} -y - 10 = 6x \\ \quad +10 \quad +10 \\ -y = 6x + 10 \\ \quad -6x \quad -6x \end{array}$$

$$-6x - y = 10$$

$$\frac{-x}{-1} = \frac{0}{-1}$$

$$x = 0$$

Answer: $(0, -10)$

Plug in anywhere

$$\begin{array}{r} 5x + y = -10 \\ 5(0) + y = -10 \\ y = -10 \end{array}$$

$$\begin{aligned} \#10. \quad 3x - 30 &= y \\ 7y - 6 &= 3x \end{aligned}$$

Rewrite

$$\begin{aligned} \cancel{3x} - y &= 30 \\ -3x + 7y &= 6 \end{aligned}$$

$$\frac{6y}{6} = \frac{36}{6}$$

$$y = 6$$

plug in Anywhere.

$$3x = y + 30$$

$$3x = 6 + 30$$

$$\frac{3x}{3} = \frac{36}{3}$$

$$x = 12$$

Answer: (12, 6)

Get in correct Form

$$\begin{aligned} 3x - 30 &= y \\ +30 \quad +30 \end{aligned}$$

$$3x = y + 30$$

$$-y \quad -y$$

$$3x - y = 30$$

$$\begin{aligned} 7y - 6 &= 3x \\ +6 \quad +6 \end{aligned}$$

$$7y = 3x + 6$$

$$-3x \quad -3x$$

$$-3x + 7y = 6$$

$$\#11. \quad (x + y = 2) \cdot -2$$

$$2x + 7y = 9$$

$$\underline{-2x - 2y = -4}$$

$$\frac{5y}{5} = \frac{5}{5}$$

$$y = 1$$

$$x + y = 2$$

$$x + 1 = 2$$

$$\underline{-1 \quad -1}$$

$$x = 1$$

Answer: (1, 1)

$$\#12. \quad 8x - 5y = 11 \longrightarrow 8x - 5y = 11$$

$$(4x - 3y = 5) \cdot -2 \longrightarrow \underline{-8x + 6y = -10}$$

$$y = 1$$

plug in Anywhere

$$8x - 5(1) = 11$$

$$\begin{aligned} 8x - 5 &= 11 \\ +5 \quad +5 \end{aligned}$$

$$\frac{8x}{8} = \frac{16}{8}$$

$$x = 2$$

Answer: (2, 1)

$$\begin{array}{rcl} \#13. & 11x - 20y = 28 & \longrightarrow 11x - 20y = 28 \\ & (3x + 4y = 36) \cdot 5 & \longrightarrow \underline{15x + 20y = 180} \\ & & \quad \underline{26x = 208} \\ & & \quad \quad \quad \frac{26}{26} = \frac{208}{26} \end{array}$$

$$\begin{array}{r} 3x + 4y = 36 \leftarrow \\ 3(8) + 4y = 36 \\ 24 + 4y = 36 \\ -24 \quad \quad -24 \\ \hline 4y = 12 \\ \frac{4y}{4} = \frac{12}{4} \\ y = 3 \end{array} \qquad \begin{array}{l} \text{Answer:} \\ (8, 3) \end{array}$$

$$\begin{array}{rcl} \#14. & 10x - 9y = 46 & \longrightarrow 10x - 9y = 46 \\ & (-2x + 3y = 10) \cdot 5 & \longrightarrow \underline{-10x + 15y = 50} \\ & & \quad \underline{6y = 96} \\ & & \quad \quad \quad \frac{6y}{6} = \frac{96}{6} \end{array}$$

$$\begin{array}{r} -2x + 3y = 10 \leftarrow \\ -2x + 3(16) = 10 \\ -2x + 48 = 10 \\ \quad \quad -48 \quad -48 \\ \hline -2x = -38 \\ \frac{-2x}{-2} = \frac{-38}{-2} \end{array} \qquad \begin{array}{l} \text{Answer:} \\ (19, 16) \end{array}$$

$$x = 19$$