

1.) $y = \frac{4}{3}x - 3$

$y = -x + 4$

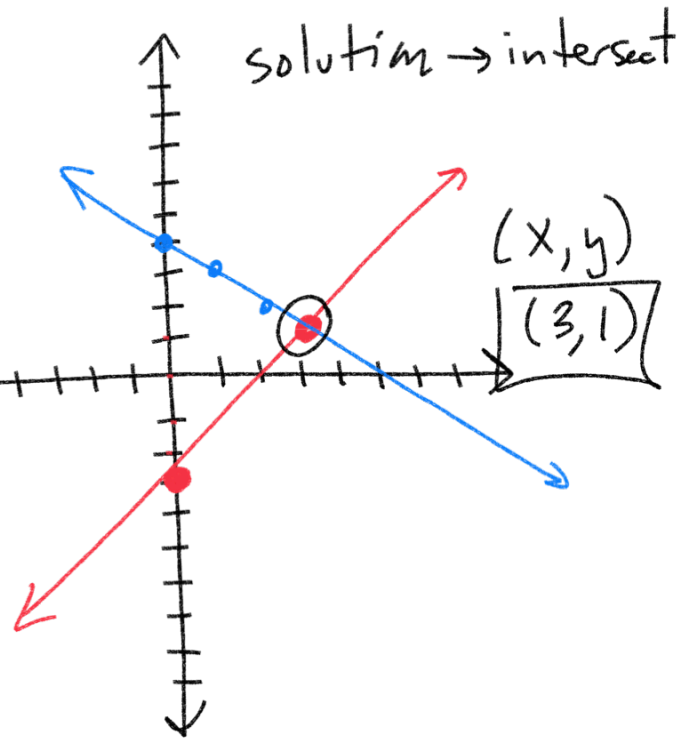
$y = \frac{4}{3}x - 3$

$\frac{4}{3}(3) - 3$

$\frac{12}{3} - 3$

$4 - 3 = 1$

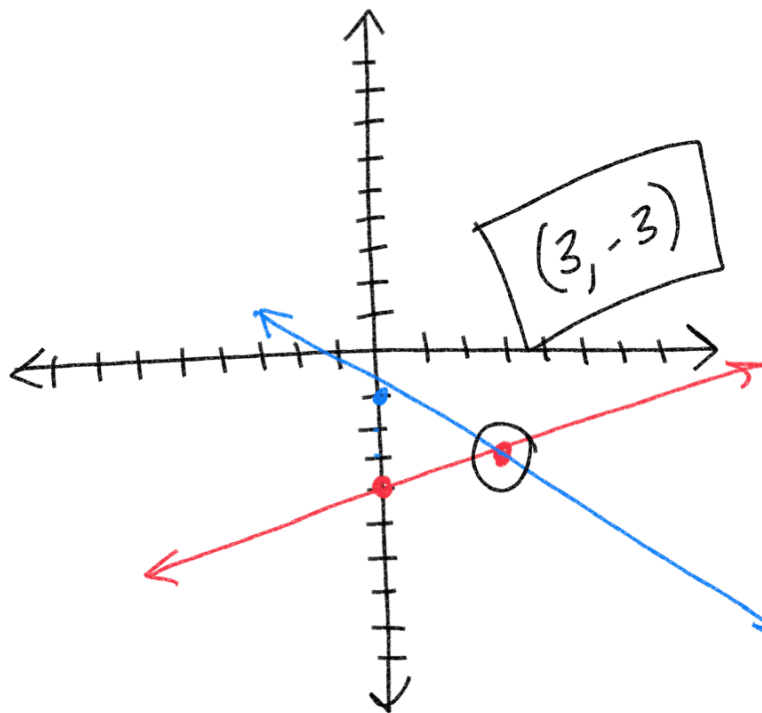
$y = -x + 4$
 $-(3) + 4$
 1



$\frac{4}{3}x - 3 = -x + 4$
 $\quad \quad +3 \quad \quad +3$

$\frac{4}{3}x = -x + 7$
 $+x \quad \quad +x$

$\frac{3}{7}(\frac{7}{3}x) = \frac{(-7)3}{7} \quad (x = 3)$



$y = \frac{1}{3}x - 4$

$y = -\frac{2}{3}x - 1$

System of Equations

$$-4x - 2 = 20$$

$$\begin{array}{r} +2 \quad +2 \\ -4x = 22 \\ \hline -4 \quad -4 \end{array}$$

$$x = -\frac{11}{2}$$

If you have one variable,
you need only
one equation

$$\begin{cases} -4x - 2y = 20 \\ x - y = -2 \end{cases}$$

If you have 2 variables,
you need 2 equations.

$$\begin{array}{r} x - y = -2 \\ + y \quad + y \\ \hline \end{array}$$

$$x = y - 2$$

Substitution

$$\rightarrow -4x - 2y = 20$$

$$\rightarrow [-4(y-2) - 2y = 20]$$

$$-4y + 8 - 2y = 20$$

$$\begin{array}{r} -6y + 8 = 20 \\ -8 \quad -8 \end{array}$$

$$\begin{array}{r} -6y = 12 \\ \hline -6 \quad -6 \end{array}$$

$$y = -2$$

$$x = y - 2$$

$$x = -2 - 2$$

$$x = -4$$

$$(-4, -2)$$

$$\boxed{-4x - 2y = 20}$$

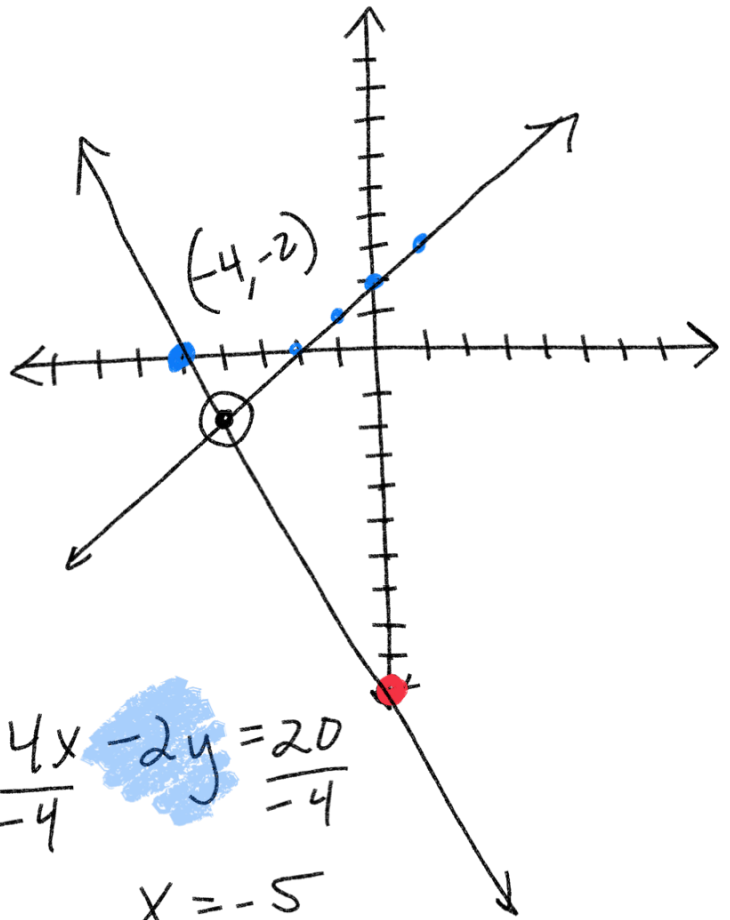
$$\begin{array}{r} x - y = -2 \\ -x \quad -x \end{array}$$

$$\begin{array}{r} -y = -x - 2 \\ \frac{-y}{-1} = \frac{-x}{-1} - \frac{2}{-1} \end{array}$$

$$\boxed{y = x + 2}$$

$$\begin{array}{r} -4x - 2y = 20 \\ \frac{-4x}{-2} - \frac{2y}{-2} = \frac{20}{-2} \\ y = -10 \end{array}$$

$$\begin{array}{r} -4x - 2y = 20 \\ \frac{-4x}{-4} - \frac{2y}{-4} = \frac{20}{-4} \\ x = -5 \end{array}$$



Solve using substitution

$$x + 5y = -23$$

$$3x - 6y = 15$$

$$\begin{array}{r} \downarrow \\ \boxed{x} + 5y = -23 \\ -5y \quad -5y \end{array}$$

$$x = \boxed{-5y - 23}$$

$$3(-5y - 23) - 6y = 15 \quad -5y - 23$$

$$-15y - 69 - 6y = 15$$

$$\begin{array}{r} -21y - 69 = 15 \\ +69 \quad +69 \end{array}$$

$$\begin{array}{r} -21y = 84 \\ \hline -21 \quad -21 \end{array}$$

$$\boxed{y = -4}$$

$$x = -5(-4) - 23$$

$$x = 20 - 23$$

$$\boxed{x = -3}$$

$$\boxed{(-3, -4)}$$

$$\begin{aligned}x - y &= -4 \\4x - 5y &= -15\end{aligned}$$

Solve by substitution.

$$\begin{aligned}x - y &= -4 \\-x &\quad -x\end{aligned}$$

$$4x - 5y = -15$$

$$\frac{-y}{-1} = \frac{-x-4}{-1}$$

$$y = \boxed{x + 4}$$

$$4x - 5(x + 4) = -15$$

$$4x - 5x - 20 = -15$$

$$\begin{aligned}\checkmark \\-x - 20 &= -15\end{aligned}$$

$$+20 \quad +20$$

$$\frac{-x}{-1} = \frac{5}{-1}$$

$$\boxed{x = -5}$$

$$y = x + 4$$

$$y = -5 + 4$$

$$y = -1$$

$$\boxed{(-5, -1)}$$

Elimination

$$\begin{array}{r} -3 \\ \boxed{\begin{array}{l} X + 5y = -23 \\ 3X - 6y = 15 \end{array}} \end{array}$$

Terms equal,
but have an
opposite sign.

$$\begin{array}{r} -3X - 15y = 69 \\ + \quad 3X - 6y = 15 \end{array}$$

$$\begin{array}{r} -21y = 84 \\ \hline -21 \quad -21 \end{array}$$

$$\boxed{y = -4}$$

$$\boxed{(-3, -4)}$$

$$X + 5y = -23$$

$$X + 5(-4) = -23$$

$$X - 20 = -23$$

$$\begin{array}{r} +20 \quad +20 \end{array}$$

$$\boxed{X = -3}$$

$$-2(2x - 2y = -8)$$

$$4x - 5y = -15$$

$$-4x + 4y = 16$$

$$+ 4x - 5y = -15$$

$$-y = 1$$

$$y = -1$$

$$\boxed{(-5, -1)}$$

Solve by elimination.

$$4x - 5y = -15$$

$$4x - 5(-1) = -15$$

$$4x + 5 = -15$$

$$-5 \quad -5$$

$$\frac{4x}{4} = \frac{-20}{4}$$

$$x = -5$$

$$-5(2x - 2y = -8)$$

$$2(4x - 5y = -15)$$

$$-10x + 10y = 40$$

$$+ 8x - 10y = -30$$

$$\frac{-2x}{-2} = \frac{10}{-2}$$

$$\boxed{x = -5}$$

$$-3(4x - y = -10)$$

$$-8x - 3y = 10$$

$$-12x + 3y = 30$$

$$+ \frac{-8x - 3y = 10}{\hline}$$

$$\frac{-20x = 40}{-20}$$

$$\frac{-20}{-20}$$
$$x = -2$$

$$(-2, 2)$$

solve by elimination

$$-8x - 3y = 10$$

$$-8(-2) - 3y = 10$$

$$16 - 3y = 10$$

$$-16 \quad -16$$

$$\frac{-3y = -6}{-3} = \frac{-6}{-3}$$

$$y = 2$$

Find the set up

$$1.) \begin{array}{l} 2(6x + 9y = 0) \\ -12x - 5y = -26 \end{array}$$

$$\begin{array}{l} \boxed{\begin{array}{l} 12x + 9y = 0 \\ -12x - 5y = -26 \end{array}} \end{array}$$

Elimination

$$2.) \begin{array}{l} 8(-5x - 10y = -20) \\ 5(8x + 4y = 20) \end{array}$$

$$\begin{array}{l} -40x - 80y = -160 \\ + 40x + 20y = 100 \\ \hline \end{array}$$