

Solve using substitution.

a. ① $4x - 3y = 5$

② $6x + y = 2$
 $-6x$ $-6x$

$$y = -6x + 2$$

③ $4x - 3(-6x + 2) = 5$

$$4x + 18x - 6 = 5$$

$$\begin{array}{r} 22x - 6 = 5 \\ +6 \quad +6 \\ \hline 22x = 11 \\ \frac{22x}{22} = \frac{11}{22} \\ x = \frac{1}{2} \end{array}$$

$$x = \frac{1}{2}$$

$$y = -6x + 2 = -6\left(\frac{1}{2}\right) + 2 = -3 + 2 = -1$$

$$\left(\frac{1}{2}, -1\right)$$

① Solve for a variable.

② Substitute that "value" for the variable into the other equation.

③ Solve that equation

④ Plug value found into equation (found in step ③)

⑤ Solve for second value.

b. ① $6x - 2y = 11 \rightarrow 6(-3y + 4) - 2y = 11$

② $x + 3y = 4$
 $-3y$ $-3y$

$$x = -3y + 4$$

$$x = -3\left(\frac{13}{20}\right) + 4 = \frac{-39}{20} + \frac{80}{20}$$

$$x = \frac{-39}{20} + \frac{80}{20}$$

$$x = \frac{41}{20}$$

$$-18y + 24 - 2y = 11$$

$$-20y + 24 = 11$$

$$\begin{array}{r} -20y = -13 \\ -20 \quad -20 \\ \hline y = \frac{13}{20} \end{array}$$

$$y = \frac{13}{20}$$

$$\left(\frac{41}{20}, \frac{13}{20}\right)$$

$$2x + 5y = -7$$

$$2x + 5(3x + 2) = -7$$

$$2x + 15x + 10 = -7$$

$$\begin{array}{r} 17x + 10 = -7 \\ -10 \quad -10 \\ \hline \end{array}$$

$$\begin{array}{r} 17x = -17 \\ \frac{17}{17} \quad \frac{17}{17} \\ \hline \end{array}$$

$$x = -1$$

$$(-1, -1)$$

$$\begin{array}{r} 3x - y = -2 \\ -3x \quad \quad -3x \\ \hline -y = -3x - 2 \\ \frac{-y}{-1} = \frac{-3x}{-1} \frac{-2}{-1} \end{array}$$

$$y = 3x + 2$$

$$y = 3(-1) + 2$$

$$y = -3 + 2$$

$$y = -1$$

p. 329 (11-15)