

$$1) y = 3x + 2$$
$$x + 2y = 11$$

Subst

$$x + 2(3x + 2) = 11$$
$$x + 6x + 4 = 11$$
$$7x + 4 = 11$$
$$7x = 7$$
$$x = 1$$

Find y

$$y = 3x + 2$$
$$y = 3(1) + 2$$
$$y = 5$$

$(1, 5)$

$$2) x = y + 3$$
$$2x - y = 5$$

Subst

$$2x - y = 5$$
$$2(y + 3) - y = 5$$
$$2y + 6 - y = 5$$
$$y + 6 = 5$$
$$y = -1$$

Find x

$$x = y + 3$$
$$x = -1 + 3$$
$$x = 2$$

$(2, -1)$

$$3) 15x - 3y = 12$$
$$y = 5x - 4$$

Subst

$$15x - 3y = 12$$
$$15x - 3(5x - 4) = 12$$
$$15x - 15x + 12 = 12$$
$$12 = 12$$

Infinite Solutions

$$\textcircled{4} \begin{cases} x = 16 - 4y \\ 3x + 4y = 8 \end{cases}$$

Subst

$$\begin{aligned} 3x + 4y &= 8 \\ 3(16 - 4y) + 4y &= 8 \\ 48 - 12y + 4y &= 8 \\ 48 - 8y &= 8 \\ -8y &= -40 \\ y &= 5 \end{aligned}$$

Find x

$$\begin{aligned} x &= 16 - 4y \\ x &= 16 - 4(5) \\ x &= 16 - 20 \\ x &= -4 \end{aligned}$$

$$\boxed{(-4, 5)}$$

$$\textcircled{5} \begin{cases} x = 2y - 6 \\ 4x + 6y = 4 \end{cases}$$

Subst

$$\begin{aligned} 4x + 6y &= 4 \\ 4(2y - 6) + 6y &= 4 \\ 8y - 24 + 6y &= 4 \\ 14y &= 28 \\ y &= 2 \end{aligned}$$

Find x

$$\begin{aligned} x &= 2y - 6 \\ x &= 2(2) - 6 \\ x &= -2 \end{aligned}$$

$$\boxed{(-2, 2)}$$

$$\textcircled{6} \begin{cases} x = y + 3 \\ 3x + 6y = -18 \end{cases}$$

Subst

$$\begin{aligned} 3x + 6y &= -18 \\ 3(y + 3) + 6y &= -18 \\ 3y + 9 + 6y &= -18 \end{aligned}$$

$$\begin{aligned} 9y + 9 &= -18 \\ 9y &= -27 \\ y &= -3 \end{aligned}$$

Find x

$$\begin{aligned} x &= y + 3 \\ x &= -3 + 3 \\ x &= 0 \end{aligned}$$

$$\boxed{(0, -3)}$$

$$\textcircled{7} \quad y = 4x + 4$$
$$8x - 2y = -2$$

Subst

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

$$8x - 2(4x + 4) = -2$$

$$8x - 8x - 8 = -2$$

$$-8 = -2$$

NO Sol

$$\textcircled{8} \quad y = -5x - 12$$
$$3x - 5y = 4$$

Subst

$$3x - 5y = 4$$

$$3x - 5(-5x - 12) = 4$$

$$3x + 25x + 60 = 4$$

$$28x = -56$$

$$x = -2$$

Find y

$$y = -5x - 12$$

$$y = -5(-2) - 12$$

$$y = 10 - 12$$

$$y = -2$$

$(-2, -2)$

$$\textcircled{9} \quad y = -2x + 3$$
$$y = 2x - 7$$

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

$$-4x = -10$$

$$x = \frac{5}{2}$$

Find y

$$y = 2x - 7$$

$$y = 2 \cdot \frac{5}{2} - 7$$

$$y = -2$$

$(\frac{5}{2}, -2)$

$$\textcircled{10} \quad x = \textcircled{5-y}$$
$$7x - 9y = 3$$

$$7(5-y) - 9y = 3$$

$$35 - 7y - 9y = 3$$

$$35 - 16y = 3$$

$$-16y = -32$$

$$y = 2$$

Find  $x$

$$x = 5 - 2$$

$$x = 3$$

$(3, 2)$