

Substitution Examples

1) $y = (-x + 15)$
 $4x + 3y = 38$

$y = -(-7) + 15$
 $y = 7 + 15$
 $y = 22$

$(-7, 22)$

$4x + 3(-x + 15) = 38$

$4x - 3x + 45 = 38$

$1x + 45 = 38$
 $-45 \quad -45$

$x = (-7)$

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

$(x - 1) = 3 - x$
 $+1 \quad +1$

$x = 4 - x$
 $+x \quad +x$

$2x = 4$
 $\frac{2x}{2} = \frac{4}{2} \quad x = 2$

$(2, 1)$

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

You Try!

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

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

$5x - 6x - 4 = -7$

$-x - 4 = -7$
 $+4 \quad +4$

$-x = -3$
 $-1 \quad -1$

$x = 3$

$y = 3(3) + 2$

$y = 9 + 2$

$y = 11$

$(3, 11)$

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

$3x - 1 = 5x + 2$
 $-3x \quad -3x$

$-1 = 2x + 2$
 $-2 \quad -2$

$-\frac{3}{2} = \frac{2x}{2} \quad x = \left(\frac{-3}{2}\right)$

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

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

$\left(\frac{-3}{2}, \frac{-11}{2}\right)$

Elimination Examples

$$1) \begin{array}{r} -2x - 8y = 10 \\ + 2x - 6y = 18 \end{array}$$

$$\begin{array}{r} -14y = 28 \\ -14y = -14 \end{array}$$

$$y = -2$$

$$\begin{array}{r} -2x - 8(-2) = 10 \\ -2x + 16 = 10 \\ -16 \quad -16 \end{array}$$

$$\begin{array}{r} -2x = -6 \\ -2 \quad -2 \end{array}$$

$$x = 3$$

$$\boxed{(3, -2)}$$

$$2) \begin{array}{r} 3(3x + 6y = 6) \\ 9x - 12y = 18 \end{array}$$

$$\begin{array}{r} 9x + 18y = 18 \\ - 9x - 12y = 18 \end{array}$$

$$\begin{array}{r} 30y = 0 \\ 30 \quad 30 \end{array} \quad y = 0$$

$$3x + 6(0) = 6$$

$$\begin{array}{r} 3x = 6 \\ 3 \quad 3 \end{array} \quad x = 2$$

$$\boxed{(2, 0)}$$