

Substitution Worksheet

$$1) \begin{aligned} -x + 9y &= -5 \\ x - 5y &= 1 \rightarrow x = 5y + 1 \end{aligned}$$

$$-(5y + 1) + 9y = -5$$

$$-5y - 1 + 9y = -5$$

$$-5y + 9y = -5 + 1$$

$$4y = -4$$

$$y = -1$$

$$\begin{aligned} x &= 5y + 1 \\ x &= 5(-1) + 1 \\ &= -5 + 1 \end{aligned}$$

$$x = -4$$

Intersects at $(-4, -1)$

$$2) \quad \begin{aligned} 4x + 9y &= -19 \Rightarrow 4x = -19 - 9y \\ -4x - 7y &= 13 \end{aligned} \quad x = \frac{-19 - 9y}{4}$$

$$-4\left(\frac{-19}{4} - \frac{9y}{4}\right) - 7y = 13$$

$$19 + 9y - 7y = 13$$

$$9y - 7y = 13 - 19$$

$$2y = -6$$

$$y = -3$$

$$x = \frac{-19}{4} - \frac{9(-3)}{4}$$

$$x = \frac{-19}{4} + \frac{27}{4}$$

$$x = \frac{8}{4} = 2$$

solution (2, -3)

3) (-2, 4)

6) (6, 2)

9) (0, 2)

4) (-4, -3)

7) (-1, -6)

10) (-1, -3)

5) (-2, 6)

8) (5, -7)