Solve for x & y

$y = -x + 10$

$y = 2x - 17$

$x + y = 10 \rightarrow 9 + y = 10$

$y = 10 - 9$

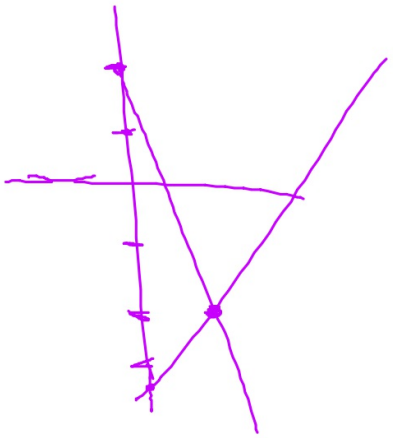
$y = 1$

$+ \quad 2x - y = 17$

$\frac{3x}{3} = \frac{27}{3}$

$x = 9$

$(9, 1)$



$29 - y = 17$

$18 - y = 17$

$-y = -1$

$y = 1$

Isolate a VARIBLE

$x - (2) = -4$

$x - y = -4 \rightarrow$

$x + 3y = 4$

$x - y = -4$

$+y \quad +y$

$x = -4 + y$

Replace for x

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

$-4 + y + 3y = 4$

$-4 + 4y = 4$

$+4 \quad +4$

$\frac{4y}{4} = \frac{8}{4}$

$y = 2$

Solution

$x - 2 = -4$

$+2 \quad +2$

$x = -2$

$(-2, 2)$

6.1 - 6.2 - 6.3

Solving Systems of Linear Equations

Solve by substitution

Find the value of one variable and replace it in the 2nd Equation.

$5+y=12$

$x + y = 12$ ⟶

$2x + y = 17$

Solve for y

$x+y=12$

$-x \quad -x$

$y = 12 - x$

Combine like terms

$2x+(12-x)=17$

$2x+12-x=17$

$x+12=17$

$-12 \quad -12$

$x=5$

$5+y=12$

$-5 \quad -5$

$y=7$

5, 7

Solving Systems of Linear Equations

Solve by addition and elimination

$x + y = 15$

$+ \quad 2x - y = 9$

$3x = 24$

$\frac{3x}{3} = \frac{24}{3}$

$x=8$

$8+y=15$

$-8 \quad -8$

$y=7$

(8, 7)

$$x - y = 10$$
$$3x + y = 42$$

$$4x = 52$$
$$\frac{4x}{4} = \frac{52}{4}$$
$$x = 13$$

$$13 - y = 10$$
$$-13 \quad -13$$
$$-y = -3$$
$$\div -1 \quad \div -1$$
$$y = 3$$

Substitution

$$3x + 2y = 22$$
$$x - y = -1 \rightarrow x - y = -1$$
$$+y \quad +y$$
$$x = -1 + y$$

$$3(-1+y) + 2y = 22$$
$$-3 + 3y + 2y = 22$$
$$-3 + 5y = 22$$
$$+3 \quad +3$$
$$\frac{5y}{5} = \frac{25}{5}$$
$$y = 5$$

$$x - 5 = -1$$
$$+5 \quad +5$$
$$x = 4$$

$(4, 5)$

$$y = 2x + 1$$

$$x + 2y = 20$$

$$x + 2(2x + 1) = 20$$

$$x + 4x + 2 = 20$$

$$5x + 2 = 20$$

$$-2 \quad -2$$

$$5x = 18$$

$$\frac{5x}{5} = \frac{18}{5}$$

$$x = 3\frac{3}{5}$$

$$y = 2\left(\frac{18}{5}\right) + 1$$

$$y = \frac{36}{5} + 1$$

$$y = 7\frac{1}{5} + 1$$

$$y = 8\frac{1}{5}$$