

Algebra 1 Yearlong Worksheet 17A

Solve the following systems of equations using the substitution method.

1) $y = 2x - 6$
 $x - y = 4$

$x + (2x - 6) = 4$
 $x + 2x - 6 = 4$
 $3x - 6 = 4$
 $3x = 10$
 $x = \frac{10}{3}$

$y = 2(2) - 6$
 $y = 4 - 6$
 $y = -2$

$(\frac{10}{3}, -2)$

2) $6x - 2y = 10$
 $x = 5y + 11$

$6(5y + 11) - 2y = 10$
 $30y + 66 - 2y = 10$
 $28y + 66 = 10$
 $28y = -56$
 $y = -2$

$x = 5(-2) + 11$
 $x = -10 + 11$
 $x = 1$

$(1, -2)$

3) $3x + 2y = 14$

$4 - 2x = y \rightarrow 4 - 2x = y$

$3x + 2(4 - 2x) = 14$

$3x + 8 - 4x = 14$

$-1x + 8 = 14$

$-1x = 6$

$x = -6$

$(-6, 16)$

$4 - 2(-6) = y$

$4 - 12 = y$

$16 = y$

4) $x + y = 8 \rightarrow y = -x + 8$

~~$2x - y = -6$~~

$2x + 1(-x + 8) = -6$

$2x + 1x + -8 = -6$

$3x + -8 = -6$

$3x = 2$

$x = \frac{2}{3}$

$(\frac{2}{3}, \frac{22}{3})$

$y = -(\frac{2}{3}) + 8$

$y = -\frac{2}{3} + \frac{8}{1}$

$y = -\frac{2}{3} + \frac{24}{3}$

$y = \frac{22}{3}$

$$5) \quad 6x - 3y = 8$$

$$x = 3$$

$$6(3) - 3y = 8$$

$$18 - 3y = 8$$

$$-3y = -10$$

$$y = \frac{10}{3}$$

$$(3, \frac{10}{3})$$

$$6) \quad \begin{aligned} x - y &= -1 \\ -2x + 3y &= 5 \end{aligned}$$

$$x = y + -1$$

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

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

$$y + 2 = 5$$

$$y = 3$$

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

$$x = 3 + -1$$

$$x = 2$$

7) $x + 4y = 9$
 $3x - 5y = -7$

$(1, 2)$

8) $3x - 2y = 8$
 $2x + 3y = 14$

$(4, 2)$

9) $3y = 5 - 2x$
 $4x + 3y = 1$

$(-2, 3)$

10) $3x - 4y = 4$
 $y = 8$

$(12, 8)$

Algebra Textbook: p. 439, #3-17, 26-28