Algebra 2

Topic 3 // Substitution B

N: Key

D:

P: 1 2 3 4 5 6

Standards: 2.0

Holt: 3-2 Solving Linear Systems p. 190

1.) $\begin{cases} y = x + 3 \\ y - 2x = 4 \end{cases}$

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

$-x + 3 = 4$

$-3 \quad -3$

$(-1)-x = 1(-1)$

$x = -1$

$y = (-1) + 3$

$y = 2$

$(-1, 2)$

2.) $\begin{cases} y = 2x + 10 \\ y + 2x = -6 \end{cases}$

$(2x+10) + 2x = -6$

$4x + 10 = -6$

$-10 \quad -10$

$\frac{4x}{4} = \frac{-16}{4} \rightarrow x = -4$

$y = 2(-4) + 10$

$y = -8 + 10$

$y = 2$

$(-4, 2)$

3.) $\begin{cases} y - 5x = -10 \\ y = 3x + 8 \end{cases}$

$(3x+8) - 5x = -10$

$-2x + 8 = -10$

$-8 \quad -8$

$\frac{-2x}{-2} = \frac{-18}{-2} \rightarrow x = -9$

$y = 3(-9) + 8$

$y = -27 + 8$

$y = -19$

$(-9, -19)$

4.) $\begin{cases} y = x + 5 \\ 4x = -y + 20 \end{cases}$

$4x = -(x+5) + 20$

$4x = -x - 5 + 20$

$+x \quad +x$

$\frac{5x}{5} = \frac{15}{5} \rightarrow x = 3$

$y = (3) + 5$

$y = 8$

$(3, 8)$

5.) $\begin{cases} x + 8 = y \\ -x - y = 0 \end{cases}$

$-x - (x+8) = 0$

$-x - x - 8 = 0$

$-2x - 8 = 0$

$+8 \quad +8$

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

$(-4) + 8 = y$

$4 = y$

$(-4, 4)$

6.) $\begin{cases} x = 2y + 10 \\ x - 4y = 8 \end{cases}$

$(2y+10) - 4y = 8$

$2y + 10 - 4y = 8$

$-2y + 10 = 8$

$-10 \quad -10$

$\frac{-2y}{-2} = \frac{-2}{-2} \rightarrow y = 1$

$x = 2(1) + 10$

$x = 2 + 10$

$x = 12$

$(12, 1)$

7.) $\begin{cases} y - x = 4 \\ 3x - 2y = -7 \end{cases}$

$y - x = 4$

$+x \quad +x$

$y = x + 4$

$3x - 2(x+4) = -7$

$3x - 2x - 8 = -7$

$x - 8 = -7$

$+8 \quad +8$

$x = 1$

$y - (1) = 4$

$y - 1 = 4$

$+1 \quad +1$

$y = 5$

$(1, 5)$

8.) $\begin{cases} x = -2y - 1 \\ 2x - 2y = 10 \end{cases}$

$2(-2y-1) - 2y = 10$

$-4y - 2 - 2y = 10$

$-6y - 2 = 10$

$+2 \quad +2$

$\frac{-6y}{-6} = \frac{12}{-6} \rightarrow y = -2$

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

$x = 4 - 1$

$x = 3$

$(3, -2)$

9.) $\begin{cases} y = -3x + 4 \\ 2x = 4y + 12 \end{cases}$

$2x = 4(-3x+4) + 12$

$2x = -12x + 16 + 12$

$2x = -12x + 28$

$+12x \quad +12x$

$\frac{14x}{14} = \frac{28}{14} \rightarrow x = 2$

$y = -3(2) + 4$

$y = -6 + 4$

$y = -2$

$(2, -2)$

10.) $\begin{cases} x = 7 - 2y \\ 6x + 3y = 15 \end{cases}$

$6(7-2y) + 3y = 15$

$42 - 12y + 3y = 15$

$42 - 9y = 15$

$-42 \quad -42$

$\frac{-9y}{-9} = \frac{-27}{-9} \rightarrow y = 3$

$x = 7 - 2(3)$

$x = 7 - 6$

$x = 1$

$(1, 3)$