Algebra 1: 6.1 Homework

Name_____

Solving Systems by Substitution

Date_____ Period____

Solve each system by substitution.

1) $y = 2x - 14$
$y = 3x - 17$

$2x - 14 = 3x - 17$

$-3x \quad -3x$

$-x - 14 = -17$

$+14 \quad +14$

$\frac{-x}{-1} = \frac{-3}{-1}$

$x = 3$

$y = 2(3) - 14$

$y = 6 - 14$

$y = -8 \quad (3, -8)$

2) $y = -8x + 18$
$y = -4x + 6$

$-8x + 18 = -4x + 6$

$+4x \quad +4x$

$-4x + 18 = 6$

$-18 \quad -18$

$\frac{-4x}{-4} = \frac{-12}{-4}$

$x = 3$

$y = -4(3) + 6$

$y = -12 + 6$

$y = -6 \quad (3, -6)$

3) $-3x - 2y = 10$
$y = -2$

$-3x - 2(-2) = 10$

$-3x + 4 = 10$

$-4 \quad -4$

$\frac{-3x}{-3} = \frac{6}{-3}$

$x = -2$

We know that $y = -2$

$(-2, -2)$

4) $y = 2x + 3$
$4x - 2y = -6$

$4x - 2(2x + 3) = -6$

$4x - 4x - 6 = -6$

$-6 = -6$

True

Infinite solutions.

5) $0.1y = 0.2x + 0.7$ $\times 10$
$0.3x - 0.4y = -0.8$ $\times 10$

$1y = 2x + 7$

$3x - 4y = -8$

$3x - 4(2x + 7) = -8$

$3x - 8x - 28 = -8$

$-5x - 28 = -8$

$+28 \quad +28$

$\frac{-5x}{-5} = \frac{20}{-5}$

$x = -4$

$y = 2(-4) + 7$

$y = -8 + 7$

$y = -1$ $(-4, -1)$

6) $\frac{1}{3}y = \frac{1}{3}x - 1$ $\times 3$

$\frac{1}{7}x + \frac{4}{7}y = -1$ $\times 7$

$y = x - 3$

$x + 4y = -7$

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

$x + 4x - 12 = -7$

$5x - 12 = -7$

$+12 \quad +12$

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

$x = 1$

$y = 1 - 3$

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

7) $3x + y = 8$
$4x + 2y = 10$

$3x + y = 8 \rightarrow y = -3x + 8$

$4x + 2(-3x + 8) = 10$

$4x - 6x + 16 = 10$

$-2x + 16 = 10$

$-16 \quad -16$

$\frac{-2x}{-2} = \frac{-6}{-2}$

$x = 3$

$y = -3(3) + 8$

$y = -9 + 8$

$y = -1$ $(3, -1)$

8) $y = 0$
$2x + 2y = 6$

$2x + 2(0) = 6$

$2x + 0 = 6$

$\frac{2x}{2} = \frac{6}{2}$

$x = 3$

We know that $y = 0$

$(3, 0)$