Kuta Software - Infinite Algebra 1 Name_____ HW Day

Solving Systems of Equations by Substitution

Date_____ Period____

Solve each system by substitution.

1) $y = 6x - 11$
$-2x - 3y = -7$
$-2x - 3(6x - 11) = -7$
$-2x - 18x + 33 = -7$
$-20x + 33 = -7$
$-33 \quad -33$
$\frac{-20x}{-20} = \frac{-40}{-20}$
$x = 2$
$y = 6(2) - 11$
$y = 12 - 11$
$y = 1$
$(2, 1)$ x, y

2) $2x - 3y = -1$
$y = x - 1$
$2x - 3(x - 1) = -1$
$2x - 3x + 3 = -1$
$-1x + 3 = -1$
$-3 \quad -3$
$\frac{-1x}{-1} = \frac{-4}{-1}$
$x = 4$
$y = (4) - 1$
$y = 3$
$(4, 3)$ x, y

3) $y = -3x + 5$
$5x - 4y = -3$
$5x - 4(-3x + 5) = -3$
$5x + 12x - 20 = -3$
$17x - 20 = -3$
$+20 \quad +20$
$17x = 17$
$x = 1$
$y = -3(1) + 5$
$y = -3 + 5$
$y = 2$
$(1, 2)$

4) $-3x - 3y = 3$
$y = -5x - 17$
$-3x - 3(-5x - 17) = 3$
$-3x + 15x + 51 = 3$
$12x + 51 = 3$
$-51 \quad -51$
$12x = -48$
$x = -4$
$y = -5(-4) - 17$
$y = 20 - 17$
$y = 3$
$(-4, 3)$

5) $y = -2$
$4x - 3y = 18$
$4x - 3(-2) = 18$
$4x + 6 = 18$
$-6 \quad -6$
$4x = 12$
$x = 3$
$4(3) - 3y = 18$
$12 \quad -3y = 18$
$-12 \quad -12$
$-3y = 6$
$y = -2$
$(3, -2)$

6) $y = 5x - 7$
$-3x - 2y = -12$
$-3x - 2(5x - 7) = -12$
$-3x - 10x + 14 = -12$
$-13x + 14 = -12$
$-14 \quad -14$
$-13x = -26$
$x = 2$
$y = 5(2) - 7$
$y = 10 - 7$
$y = 3$
$(2, 3)$

Set Equal

7) $y = 4x + 6$
$y = -5x - 21$
$4x + 6 = -5x - 21$
$+5x \quad +5x$
$9x + 6 = -21$
$-6 \quad -6$
$\frac{9x}{9} = \frac{-27}{9}$
$x = -3$
$y = 4(-3) + 6$
$y = -12 + 6$
$y = -6$
$(-3, -6)$

8) $y = 5x - 3$
$3x - 8y = 24$
$3x - 8(5x - 3) = 24$
$3x - 40x + 24 = 24$
$-37x + 24 = 24$
$-24 \quad -24$
$\frac{-37x}{-37} = \frac{0}{-37}$
$x = 0$
$y = 5(0) - 3$
$y = 0 - 3$
$y = -3$
$(0, -3)$ x, y

9) $y = 5x - 2$
$-3x + 6y = -12$
$-3x + 6(5x - 2) = -12$
$-3x + 30x - 12 = -12$
$27x - 12 = -12$
$27x = 0$
$x = 0$
$y = 5(0) - 2$
$y = 0 - 2$
$y = -2$
$(0, -2)$

10) $y = x + 3$
$-3x + 3y = 4$
$-3x + 3(x + 3) = 4$
$-3x + 3x + 9 = 4$
$9 = 4$
not true, so no solution