# Solving Systems of Equations by Substitution

Date_____ Period____

**Solve each system by substitution.**

1) $y = 6x - 11$
$-2x - 3y = -7$

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

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

4) $-3x - 3y = 3$
$y = -5x - 17$

5) $y = -2$
$4x - 3y = 18$

6) $y = 5x - 7$
$-3x - 2y = -12$

7) $-4x + y = 6$
$-5x - y = 21$

8) $-7x - 2y = -13$
$x - 2y = 11$

9) $-5x + y = -2$
$-3x + 6y = -12$

10) $-5x + y = -3$
$3x - 8y = 24$

Kuta Software - Infinite Algebra 1 Name KEY

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Date _____ Period Support

**Solve each system by substitution.**

1) $y = 6x - 11$
$-2x - 3y = -7$

$-2x - 3(6x - 11) = -7$
$-2x - 18x + 33 = -7$
$-20x + 33 = -7$
$-20x = -40$
$x = 2$

$y = 6(2) - 11$
$y = 12 - 11$
$y = 1$

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

$y = 4 - 1$
$y = 3$

$2x - 3(x - 1) = -1$
$2x - 3x + 3 = -1$
$-x + 3 = -1$
$-x = -4$
$x = 4$

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

$5x - 4(-3x + 5) = -3$
$5x + 12x - 20 = -3$
$17x - 20 = -3$
$17x = 17$
$x = 1$

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

4) $-3x - 3y = 3$
$y = -5x - 17$

$y = -5(-4) - 17$
$y = 20 - 17$
$y = 3$

$-3x - 3(-5x - 17) = 3$
$-3x + 15x + 51 = 3$
$12x + 51 = 3$
$12x = -48$
$x = -4$

5) $y = -2$
$4x - 3y = 18$

$4x - 3(-2) = 18$
$4x + 6 = 18$
$4x = 12$
$x = 3$

6) $y = 5x - 7$
$-3x - 2y = -12$

$y = 5(2) - 7$
$y = 10 - 7$
$y = 3$

$-3x - 2(5x - 7) = -12$
$-3x - 10x + 14 = -12$
$-13x + 14 = -12$
$-13x = -26$
$x = 2$

7) $-4x + y = 6$
$-5x - y = 21$

$y = 4x + 6$

$-5x - (4x + 6) = 21$
$-5x - 4x - 6 = 21$
$-9x - 6 = 21$
$-9x = 27$
$x = -3$

$y = 4(-3) + 6$
$y = -12 + 6$
$y = -6$

8) $-7x - 2y = -13$
$x - 2y = 11$

$x = 2y + 11$

$x = 2(-4) + 11$
$x = -8 + 11$
$x = 3$

$-7(2y + 11) - 2y = -13$
$-14y - 77 - 2y = -13$
$-16y - 77 = -13$
$-16y = 64$
$y = -4$

9) $-5x + y = -2$
$-3x + 6y = -12$

$y = 5x - 2$

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

$y = 5(0) - 2$
$y = 0 - 2$
$y = -2$

10) $-5x + y = -3$
$3x - 8y = 24$

$y = 5x - 3$

$3x - 8(5x - 3) = 24$
$3x - 40x + 24 = 24$
$-37x + 24 = 24$
$-37x = 0$
$x = 0$

$y = 5(0) - 3$
$y = 0 - 3$
$y = -3$