KEY

Algebra 1, Unit 3

1. Substitute
2. Simplify
3. Solve → Algebraic Method

Name: _____ Date: _____ Period: _____

Solving using substitution:

Example 1: Find the value of y if (5, y) is a solution to the equation $2x + 6y = 16$.

$2(5) + 6y = 16$

$10 + 6y = 16$

$-10 \quad -10$

$\frac{6y}{6} = \frac{6}{6}$

$y = 1$

Example 2: What is x if (x, -3) is a solution to the equation $2x + 3y = -17$.

$2x + 3(-3) = -17$

$2x - 9 = -17$

$+9 \quad +9$

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

$x = -4$

Example 3: What is the value of x in the equation $4x - 5y = -16$ if the solution is (x, 3)?

$4x - 5(3) = -16$

$4x - 15 = -16$

$+15 \quad +15$

$\frac{4x}{4} = \frac{-1}{4}$

$x = -\frac{1}{4}$ or -0.25

Practice:

What is x if (x, 5) is a solution to the equation $3x + 3y = 27$?

$3x + 3(5) = 27$

$3x + 15 = 27$

$-15 \quad -15$

$\frac{3x}{3} = \frac{12}{3}$

$x = 4$

What is x if (x, 9) is a solution to the equation $x + 3y = -17$?

$x + 3(9) = -17$

$x + 27 = -17$

$-27 \quad -27$

$x = -44$

What is the value of x in the equation $4x - 8y = -16$ if the solution is (x, 3)?

$4x - 8(3) = -16$

$4x - 24 = -16$

$+24 \quad +24$

$\frac{4x}{4} = \frac{8}{4}$

$x = 2$

What is the value of x in the equation $2x - 5y = 16$ if the solution is (x, 4)?

$2x - 5(4) = 16$

$2x - 20 = 16$

$+20 \quad +20$

$\frac{2x}{2} = \frac{36}{2}$

$x = 18$

Find the value of y if (5, y) is a solution to the equation $2x + 4y = -20$.

$2(5) + 4y = -20$

$10 + 4y = -20$

$-10 \quad -10$

$\frac{4y}{4} = \frac{-30}{4}$

$y = -7.5$

$y = \frac{-15}{2}$

Find the value of y if (-10, y) is a solution to the equation $2x + 6y = 6$.

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

$-20 + 6y = 6$

$+20 \quad +20$

$\frac{6y}{6} = \frac{26}{6}$

$y = \frac{13}{3}$