NAME _____

Lesson 3.7 Solving 2-Variable Linear Equation Systems

Systems of equations can be solved by using the method of substitution following the steps below.

$y = 7x + 10$
$y = 9x + 38$

$7x + 10 = 9x + 38$

Step 1: Substitute one value of y so that there is only one variable in the new equation.

$7x + 10 - 7x = 9x + 38 - 7x$
$10 = 2x + 38$

Step 2: Use the inverse operation and combine like terms with the x variable.

$10 - 38 = 2x + 38 - 38$
$-28 = 2x$

Step 3: Use the inverse operation to narrow the equation to 2 terms.

$-28 \div 2 = 2x \div 2$

Step 4: Use the inverse operation to isolate the x variable.

$x = -14$

Step 5: Find the value of the x variable.

$y = 7(-14) + 10$

Step 6: Substitute the value of the x variable in one of the equations.

$y = -98 + 10$
$y = -88$

Step 7: Solve to find the value of the y variable.

Use substitution to solve each equation system.

	a	b
1.	$y = -\frac{4}{3}x + 6$ $y = 2$	$y = \frac{1}{2}x + 3$ $y = 5$
	$x =$ _____, $y =$ _____	$x =$ _____, $y =$ _____
2.	$y = 4x + 5$ $y = -\frac{1}{3}x - 8$	$y = \frac{7}{2}x - 5$ $y = -5$
	$x =$ _____, $y =$ _____	$x =$ _____, $y =$ _____
3.	$y = \frac{1}{3}x - 4$ $y = -\frac{7}{3}x + 4$	$y = -\frac{5}{2}x + 10$ $y = \frac{1}{2}x + 4$
	$x =$ _____, $y =$ _____	$x =$ _____, $y =$ _____