Algebra 1 Name KEY 11/12 ID: 1

Unit 7 Day 1 Practice

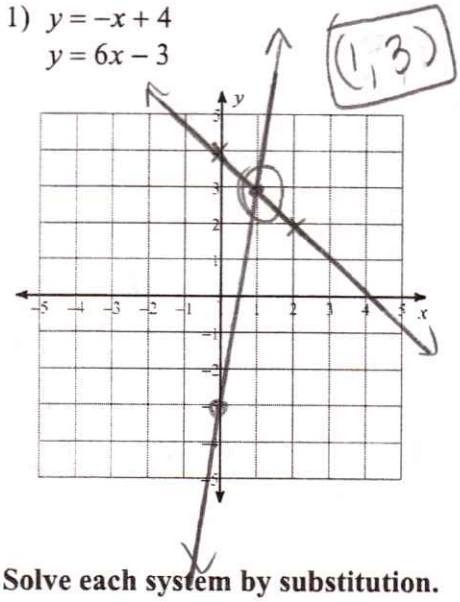
Date_____ Period____

Solve each system by graphing.

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

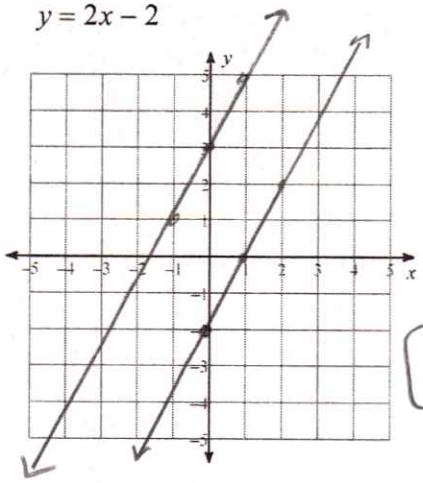
$m = -1$
$b = 4$

$m = 6$
$b = -3$



$(1, 3)$

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



$m = 2$
$b = 3$

$m = 2$
$b = -2$

no Solutions

Solve each system by substitution.

3) $3x - 3y = 9$
$y = x - 3$

$3x - 3(x - 3) = 9$
$3x - 3x + 9 = 9$
$9 = 9$
true

Infinite Solutions

4) $8x + 2y = -14$
$y = -8x - 15$

$8x + 2(-8x - 15) = -14$
$8x - 16x - 30 = -14$
$-8x - 30 = -14$
$+30 \quad +30$
$-8x = 16$
$x = -2$

$y = -8(-2) - 15$
$y = 16 - 15$
$y = 1$

$(-2, 1)$

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

$6x + 2(-3x - 6) = 3$
$6x - 6x - 12 = 3$
$-12 = 3$
x - false

no Solutions

6) $y = 3x + 20$
$y = x + 6$

$x + 6 = 3x + 20$
$-3x \quad -3x$
$-2x + 6 = 20$
$-6 \quad -6$
$-2x = 14$
$x = -7$

$y = (-7) + 6$
$y = -1$

$(-7, -1)$

**must have x or y isolated **

Steps for Solving a System by Substitution

Example: $y = x + 1$ $\quad$ $2x + y = -2$

y is isolated

Step 1: Select the equation that already has a variable isolated.	**Step 2**: Substitute the expression from Step 1 into the other equation for the variable you isolated in step 1 and solve for the other variable.	**Step 3**: Substitute the value from Step 2 into the revised equation from Step 1 and solve for the other variable. Create a point from your solutions.	**Step 4**: Check the solution in each of the original equations.
$y = \boxed{x+1}$	$2x + y = -2$ $2x + (x+1) = -2$ $2x + x + 1 = -2$ $3x + 1 = -2$ $-1 \quad -1$ $3x = -3$ $x = \boxed{-1}$	$y = x + 1$ $y = (-1) + 1$ $y = -1 + 1$ $y = \boxed{0}$ $(-1, 0)$ (x, y)	$(0) = (-1) + 1$ $0 = 0$ ✓ $2(-1) + (0) = -2$ $-2 = -2$ ✓ yes $(-1, 0)$ is a solution

Example: Solve the system below:

$2x + 2y = 3$

$x = \boxed{4y - 1}$

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

$8y - 2 + 2y = 3$

$10y - 2 = 3$

$+2 \quad +2$

$\frac{10y}{10} = \frac{5}{10}$

$y = \boxed{\frac{1}{2}}$

$x = 4(\frac{1}{2}) - 1$

$x = 2 - 1$

$x = \boxed{1}$

$\boxed{(1, \frac{1}{2})}$

Check

$2(1) + 2(\frac{1}{2}) = 3$

$2 + 1 = 3$

$3 = 3$ ✓

$(1) = 4(\frac{1}{2}) - 1$

$1 = 2 - 1$

$1 = 1$ ✓

yes $(1, \frac{1}{2})$ is a solution

Example: Solve the system below:

*either are isolated

$y = \boxed{x + 1}$

$y = -2x + 4$

$x + 1 = -2x + 4$

$+2x \quad +2x$

$3x + 1 = 4$

$-1 \quad -1$

$3x = 3$

$x = \boxed{1}$

$y = (1) + 1$

$y = \boxed{2}$

$\boxed{(1, 2)}$

$(2) = (1) + 1$

$2 = 2$ ✓

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

$2 = -2 + 4$

$2 = 2$ ✓

yes $(1, 2)$ is a solution

Example: Solve the system below:

$x = \boxed{3 - y}$
$x + y = 7$

$(3-y)+y=7$
$3-y+y=7$
$3=7$
X False

$\boxed{\text{no solutions}}$

Example: Solve the system below:

$y = \boxed{-2x + 4}$
$4x + 2y = 8$

$4x+2(-2x+4)=8$
$4x-4x+8=8$
$8=8$
true

$\boxed{\text{Infinite many solutions}}$

When the variables drop out and the resulting equation is **FALSE**, the answer is **NO SOLUTIONS.**
When the variables drop out and the resulting equation is **TRUE**, the answer is **INFINITE SOLUTIONS.**

		Number of Solutions		
		1 Solution	Infinitely Many Solutions	No Solution
	Substitution / Elimination	When using either substitution or elimination, you should get a value for either x or y. You should be able to find the other value by substituting either x or y back into the original equation.	When using either substitution or elimination, you will get an equation that has **no variable** and is **always true.** For example: 2=2 or -5=-5	When using either substitution or elimination, you will get an equation that has **no variable** and is **never true.** For example: 0=6 or -2=4