Name_____

Inverses of Lines, Again!

1. Consider the linear equation $y = \frac{1}{2}x + 3$. Use this equation to complete the table.

x	y
-4	
-1	
0	
3	
6	
	13
	47

2. In these cases, when starting with a *y*-value to find *x*, you can solve an equation like the ones below. Record the necessary steps.

$13 = \frac{1}{2}x + 3$	$47 = \frac{1}{2}x + 3$

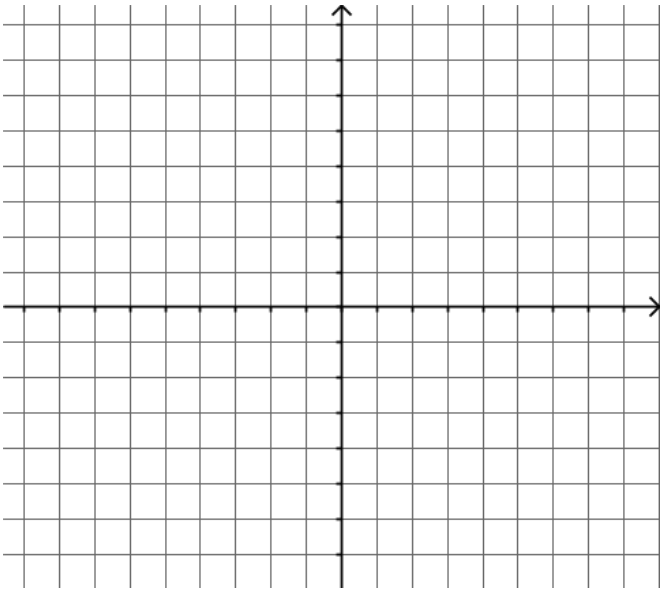
3. In the original function, imagine switching the *x*- and *y*-variables. If *x* and *y* are interchanged, the new equation would be $x = \frac{1}{2}y + 3$. Solve this equation for *y*. Record your steps verbally.

4. How are the processes used in **questions 2** and **3** alike?

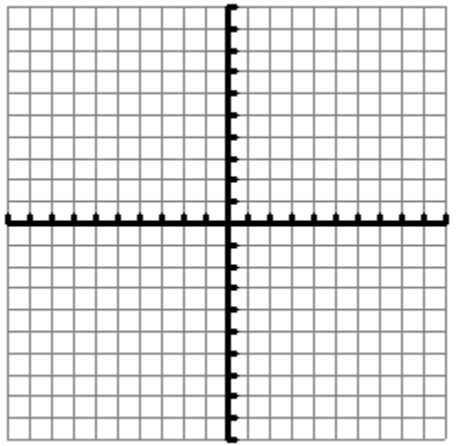
5. Graph the original function $y = \frac{1}{2}x + 3$ and the equation from **question 3** ($x = \frac{1}{2}y + 3$, solved for *y*) on the same set of axes.

6. What do you notice about the graphs?

7. How are inverse relations connected to the inverse operations used to solve an equation?



8. For the following equations, determine the inverse function, create a table for the original and inverse function, and graph the original and inverse function.

Original Function	Inverse Function	Tables	Graph
$y = 2x - 4$		x | y_1 x | y_2	
$y = \frac{1}{3}x + 1$		x | y_1 x | y_2