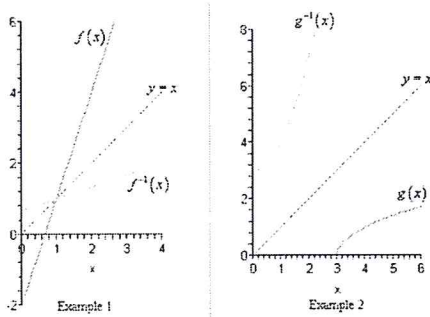


## Inverse Functions

There are a few different ways we can find the inverses of functions.

### 1. Graphically

The inverse of a function is found in a graph by reflecting the function over the line  $y=x$ .



Notice in each example how the original function is reflected over the line  $y=x$ .

### 2. Table of Values

To find the inverse function if you're given a table, all you have to do is switch the x and y coordinates.

Example:

Original	
x	y
0	3
1	5
2	7

 $\Rightarrow$ 

Inverse	
x	y
3	0
5	1
7	2

Your Turn:

Original	
x	y
-1	-2
0	0
1	2

 $\Rightarrow$ 

Inverse	
x	y
-2	-1
0	0
2	1

### 3. Equation

To find the inverse of an equation you first switch the x and y variables. Then solve the new equation for y.

Example:  $y = 2x + 3$

Switch the variables x and y and then solve for y. Show your work below.

$$x = 2y + 3$$

$$x - 3 = 2y$$

$$y = \frac{x-3}{2}$$

Do Homework: WS + pg 501 #2-17



# Mr. Ward Answer Key

pg 501

2. See Graph

3. See Graph

4.  $y = x + 3$

$x = y + 3$

$y = x - 3$

5.  $y = 4x$

$x = 4y$

$y = x/4$

6.  $y = \frac{x}{2}$

$x = 1/2$

$y = 2x$

7.  $y = x - 2\frac{1}{2}$

$x = y - 2\frac{1}{2}$

$y = x + 2\frac{1}{2}$

8.  $y = 5x - 1$

$x = 5y - 1$

$x + 1 = 5y$

$y = \frac{x+1}{5}$

9.  $y = \frac{x}{2} + 3$

$x = \frac{y}{2} + 3$

$x - 3 = 1/2$

$y = 2x - 6$

10.  $y = 3 - \frac{1}{2}x$

$x = 3 - \frac{1}{2}y$

$x - 3 = -\frac{1}{2}y$

$y = -2x + 6$

11.  $y = \frac{1}{2}(3 - 3x)$

$x = \frac{1}{2}(3 - 3y)$

$2x = 3 - 3y$

$2x - 3 = -3y$

$y = -\frac{2}{3}x + 1$

12.  $y = 4(x+1)$

$x = 4(y+1)$

$\frac{1}{4}x = y + 1$

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

13.  $y = \frac{3x-5}{2}$

$x = \frac{3y-5}{2}$

$2x = 3y - 5$

$2x + 5 = 3y$

$y = \frac{2}{3}x + \frac{5}{3}$

14. See Graph

$y = 5 - 2x$

$x = 5 - 2y$

$x - 5 = -2y$

$y = -\frac{1}{2}x + \frac{5}{2}$

See Graph

15. See Graph

$y = 1/4 + 2$

$x = 1/4 + 2$

$x - 2 = 1/4$

$y = 4x - 8$

See Graph

16. See Graph

$y = 10 + 0.6x$

$x = 10 + 0.6y$

$x - 10 = 0.6y$

$y = \frac{x-10}{0.6}$

See Graph

17.  $C = \frac{5}{9}(F - 32)$

$9/5C = F - 32$

$F = \frac{9}{5}C + 32$

$F = \frac{9}{5}(16) + 32$

$F = 61^\circ$