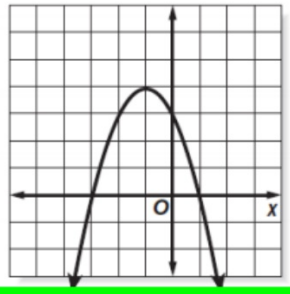
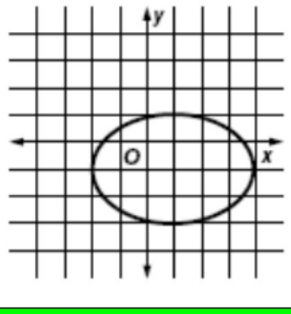
Warm Up September 11, 2018

For exercises #1-2, find the domain and range. Then tell whether the graph reprsents a function.

1.



2.



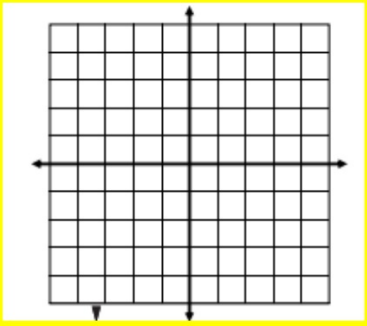
3.) Given the domain {-2, 0, 3}, evaluate the range for the function $f(x) = x^2 - 4$.

Graphing Functions

Functions can be represented by an equation. To graph them, you can create a table to plot the points.

Example: $y = 2x - 3$

x	y
-1	
0	
2	
4	



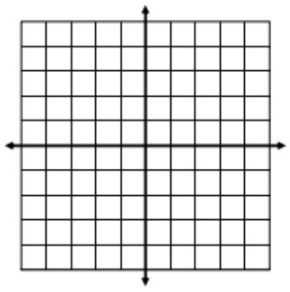
Domain
Input

Range
Output

Complete on graph paper!

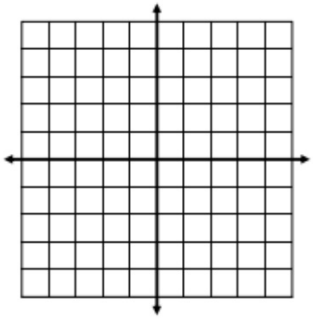
1. $y = x + 4$

x	y
-5	
-4	
-2	
0	

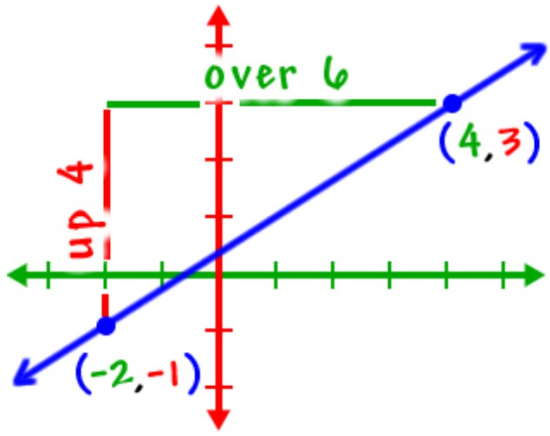


2. $y = \frac{3}{4}x - 2$

x	y
-4	
0	
4	
8	



Slope from a Graph



$$\frac{\text{RISE}}{\text{RUN}}$$

Before your RUN out of the door, you must RISE out of your seat!

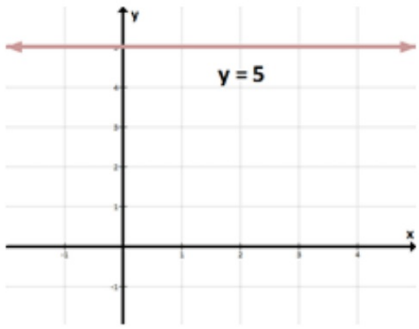
SPECIAL CASES

Y=#

X=#

HOY

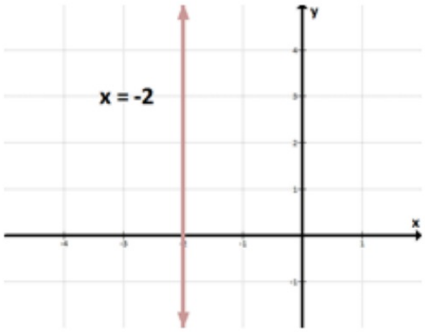
VUX



"0" Slope

There is no "x" in the equation, since it doesn't matter what x is (y always stays the same).

Example: The age of your little sister (5), based on the ages of all your friends. Your sister's ages stays at 5.



Undefined Slope

There is no "y" in the equation, since it doesn't matter what y is (x always stays the same).

Example: Think of an elevator going up and down where $x = -2$. This really doesn't make sense, since every x should really only have one y.

Slope from a Table

$$\frac{\text{CHANGE IN Y}}{\text{CHANGE IN X}}$$

X	Y
-2	3
-1	6
0	9
1	12
2	15

X	Y
-4	-10
-2	-4
-1	-1
1	5
4	14

SPECIAL CASES

Y=#

Slope = 0

HOY

X	Y
−4	5
−6	5
−8	5
−10	5
−12	5

X=#

Slope =Undef.

VUX

X	Y
−2	4
−2	6
−2	8
−2	10
−2	12

How can you find the slope without a graph ?

(x_1, y_1) and (x_2, y_2)

Slope Formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

It is important to remember to simplify your answer!

If you have a table, pick two points!

Slope Formula	Used to find the slope between two points (x_1, y_1) and (x_2, y_2)
(x_1, y_1) (x_2, y_2)	**Formula:** ***It is important to remember to SIMPLIFY your answer!**

1. (1, 1) and (4, 3)	**2.** (-2, 4) and (10, -2)
$m = \frac{3-1}{4-1} = \frac{2}{3}$	$m = \frac{-2-4}{10-(-2)} = \frac{-6}{12} = \frac{-1}{2}$

3. (-4, 5) and (-8, -5)

$m = \frac{-5-5}{-8-(-4)} = \frac{-10}{-4} = \frac{5}{2}$

4. (10, 0) and (-2, 4)

$m = \frac{4-0}{-2-10} = \frac{4}{-12} = -\frac{1}{3}$

5. (5, 9) and (3, 9)

$m = \frac{9-9}{3-5} = \frac{0}{-2} = 0$

6. (-7, 8) and (-7, 5)

$m = \frac{5-8}{-7-(-7)} = \frac{-3}{0} =$ undef.