Name:_____

Transformation of Quadratic Functions

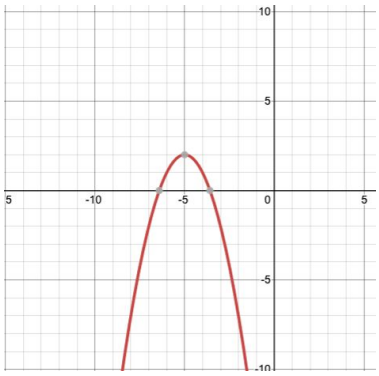
-Horizontal Shift

-Vertical Shift

- Strech/Shrink

- Reflection

$f(x)= -(x+5)^2 +2$



Let' s look at the function!

$f(x)= f(x) +C$

What does the "+ C " tell us?

It tells us there is a _____! In the _____ direction because it is _____.

$f(x)= -(x+5)^2 +2$

* So the whole graph goes _____ ____ units.*

You are adding to the function, moving the y-values.

A function takes care of two points (x, f(x)), just like (x,y) but inputs and outputs.

In this case:

The x would be _____

So (x+C) acts as the opposite you would go to the left because it is x-values and moves horizaontally. This is because you x-values are the horizontal values on a graph.

So here we are going to shift _____ units to the _____.

Now let's look at the negaitve sign!

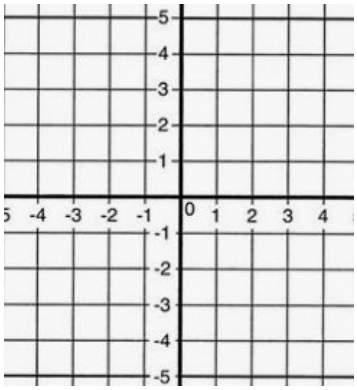
We have talked about reflections what two kinds of reflections are there:

We have f(x)= -f(x) and f(x)= f(-x)

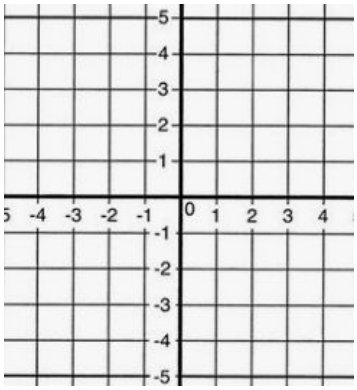
Let's think if we have a point (x,y) which is equal to (x, f(x)), when dealing with functions.

If we have (2,4),

Now it will be (2, -4) this goes over ____ axis.



If we have (-2, 4), now it goes over the ___ axis.



When you have a negative x- value it goes over the y-value.

So……..

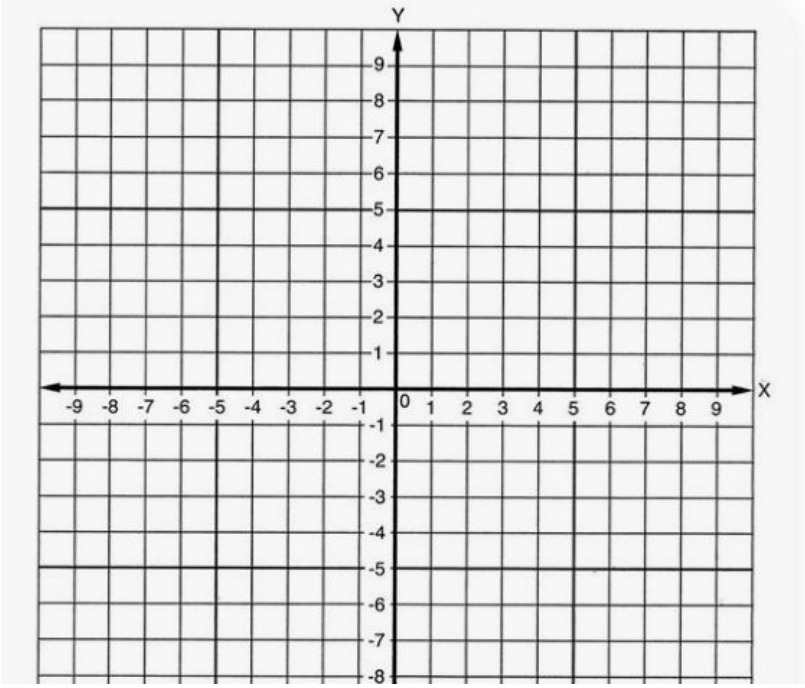
f(x)= -f(x)+ (x,-y) causing a reflection over the ____ axis

f(x)= f(-x)+ (-x,y) causing a reflection over the ____ axis

Since the negative infront of the ( ), it is f(x)=-f(x) which means we have a reflection over ____ axis

Let's graph it!

Before we do so let's thing back to $f(x)= x^2$



Does it match the graoh on top? _____