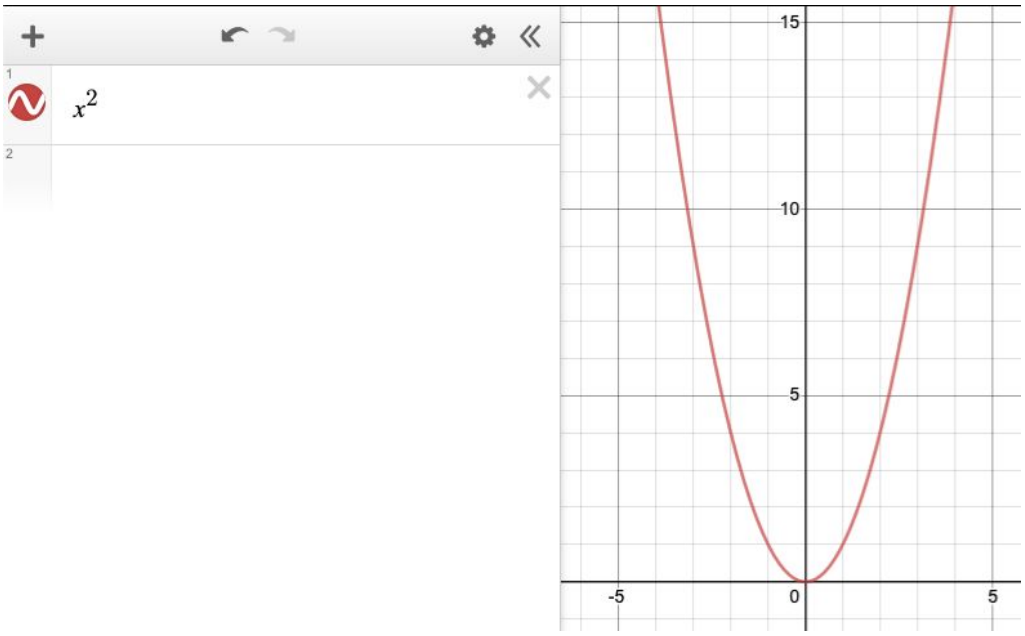
Name:_____ Date:_____

Transformations

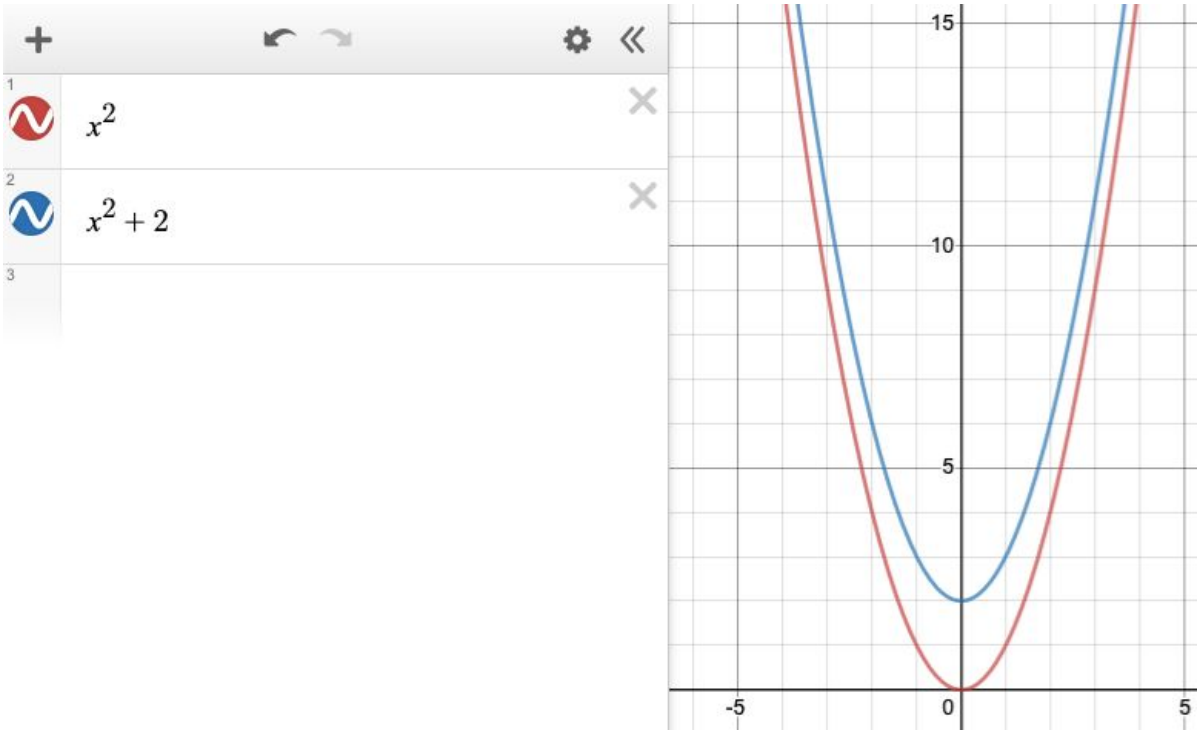
Let's learn how to identify transformations that are being done to a graph based off of the function! First, open Desmos on your computer. Let's identify our parent function and what it looks like.



What happens if we:

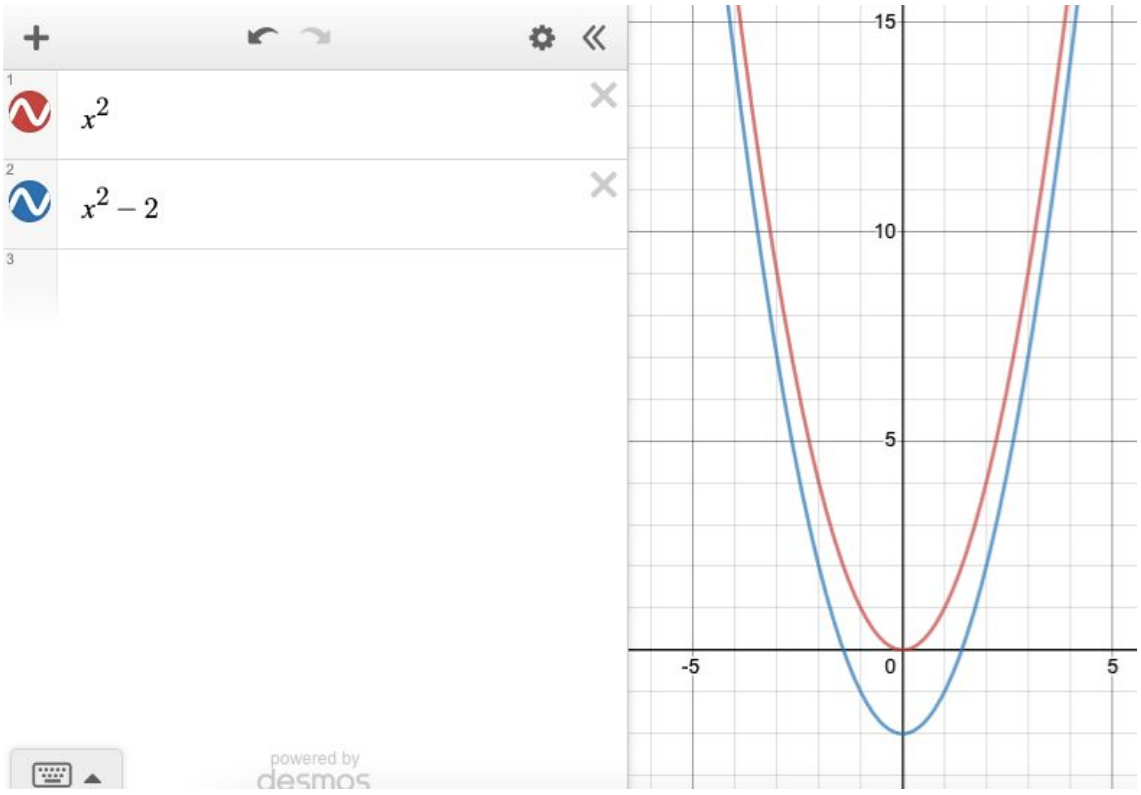
ADD a value to our parent function? What does the graph look like?

_____



SUBTRACT a value from our parent function? What does the graph look like?

_____



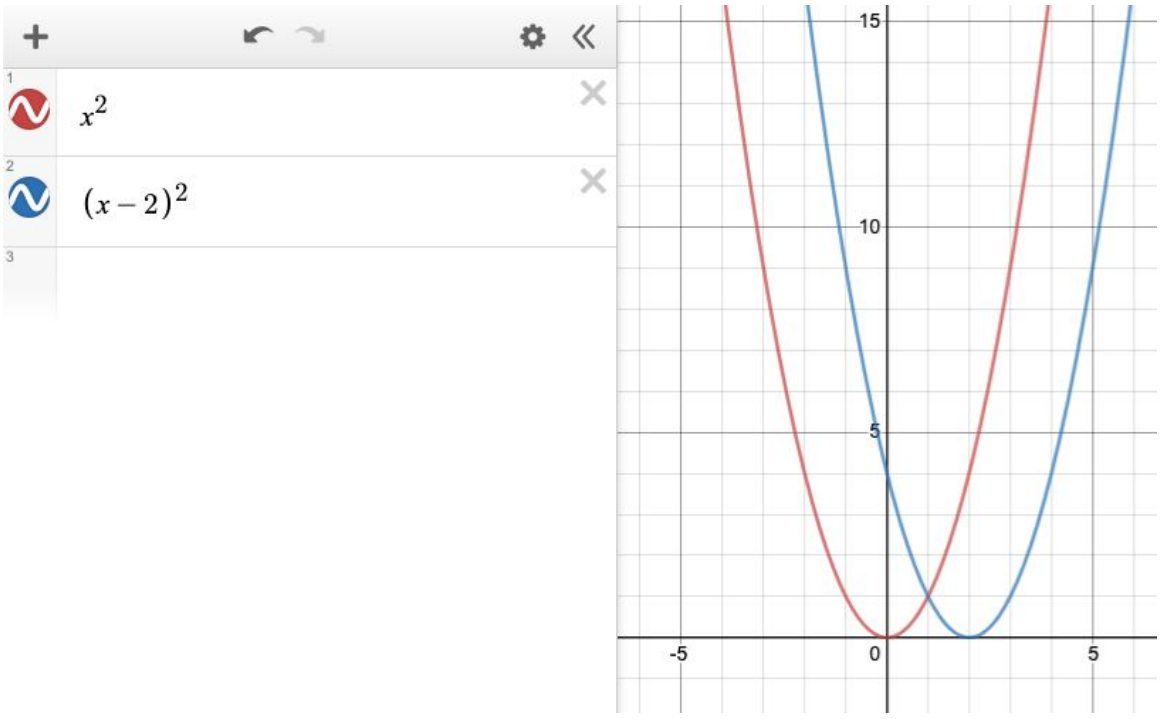
These transformations shift the functions _____ and _____. Our formula for these transformations is _____.

What happens if we:

ADD a value to our x? What does the graph look like? **Make sure to use parenthesis!**

_____

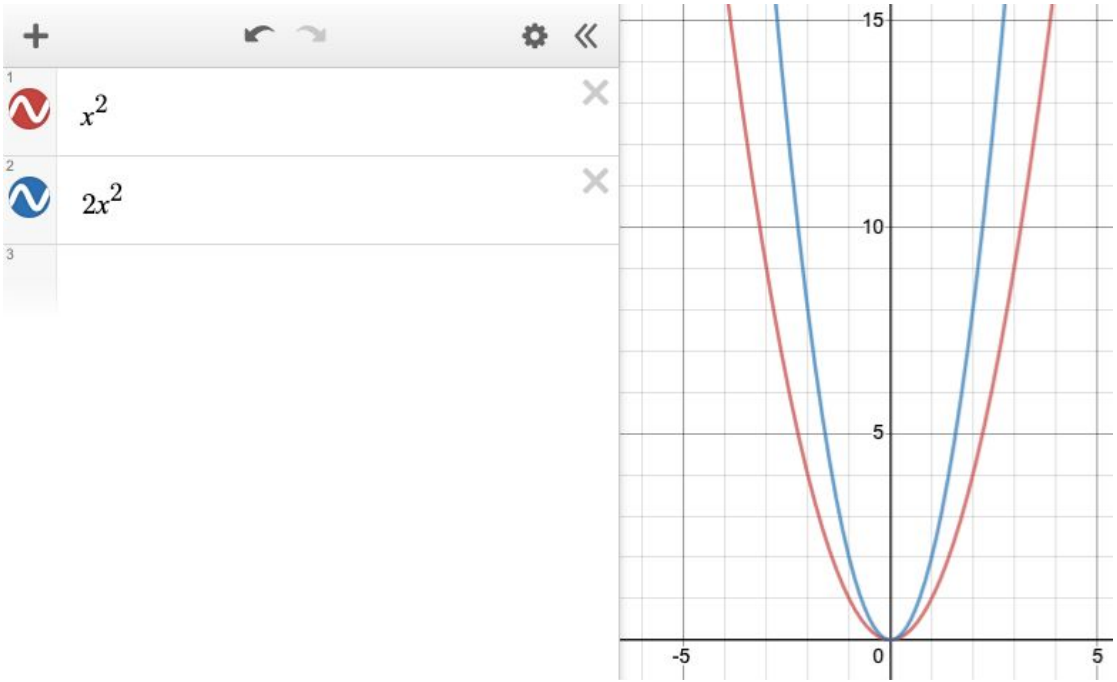
SUBTRACT a value from our x? What does the graph look like?



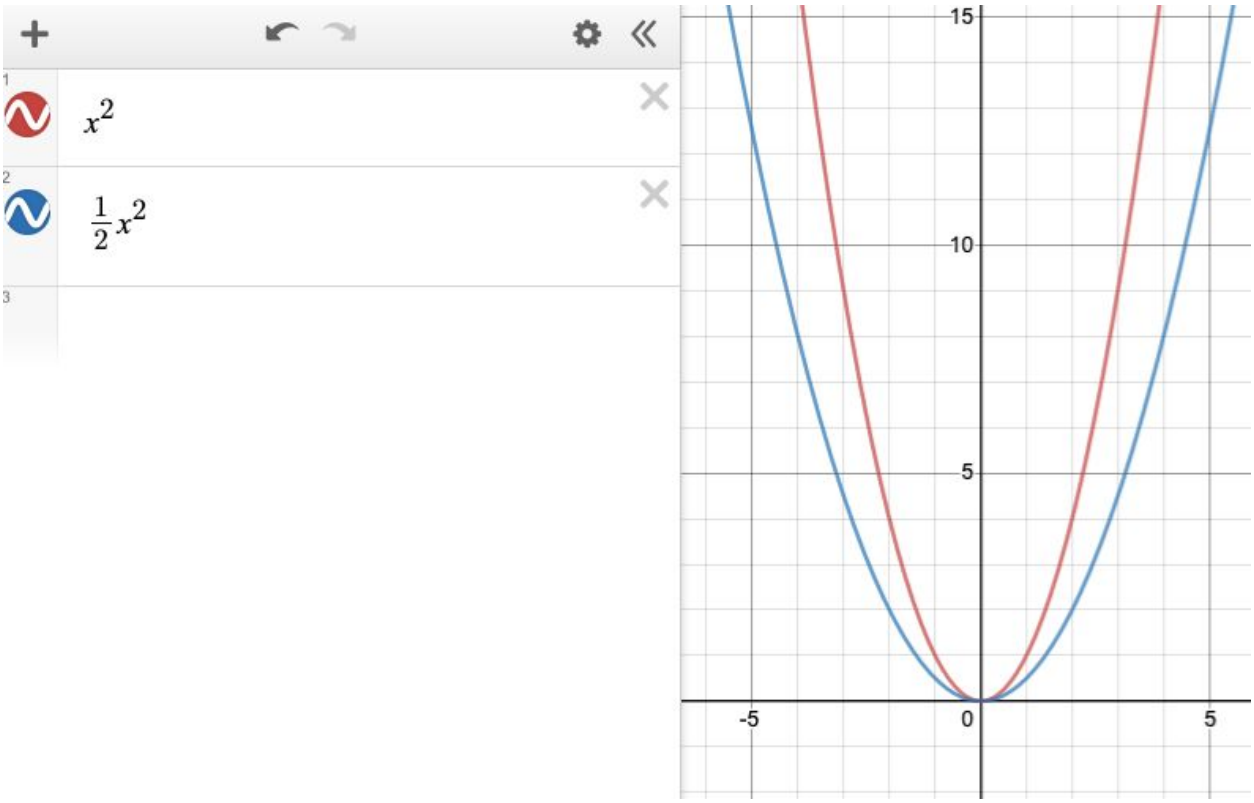
These transformations move the functions _____ and _____. Our formula for these transformations is _____.

What happens if we:

MULTIPLY a value to our parent function? What does the graph look like?



DIVIDE (or multiply by a fraction) a value from our parent function? What does the graph look like?_____

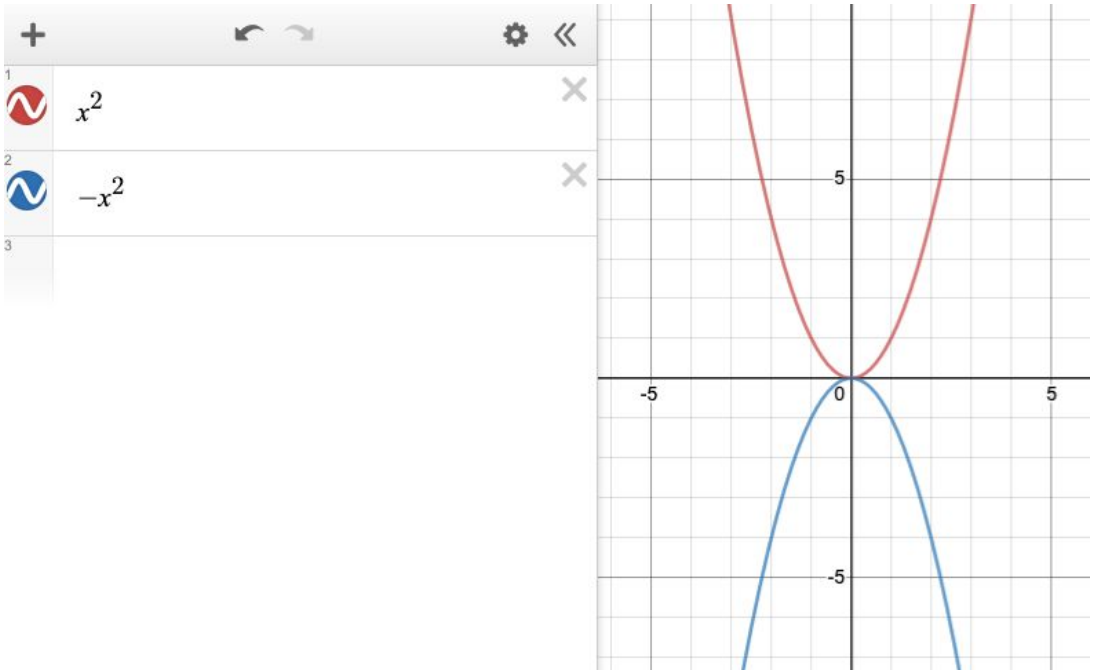


These transformations _____ and _____ our functions, called _____.
Our formula for these transformations is _____.

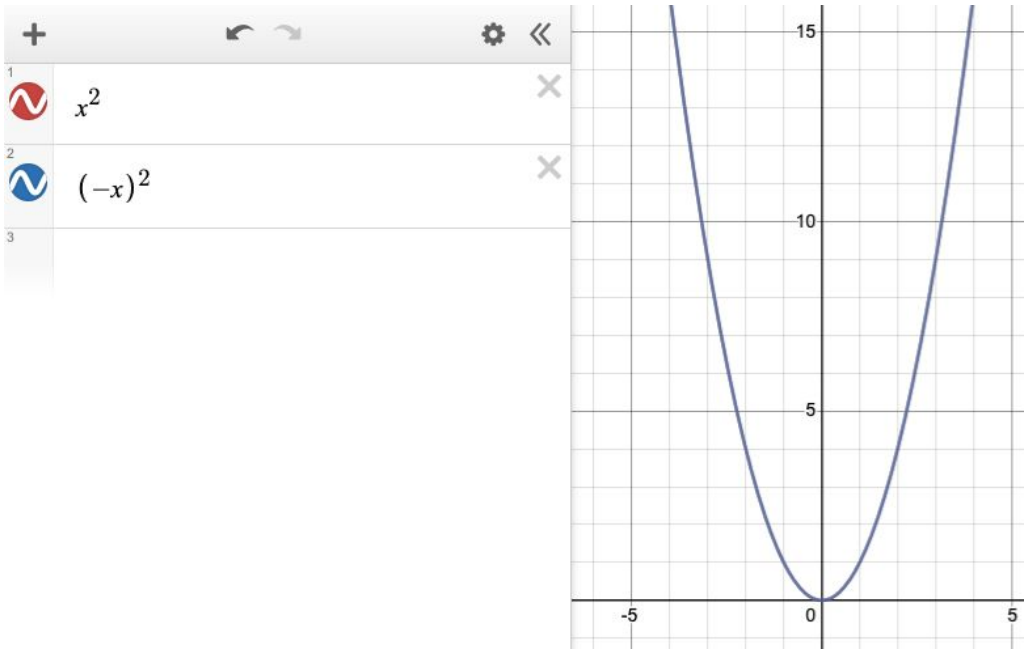
What happens if we:

Make our parent function NEGATIVE? What does the graph look like?

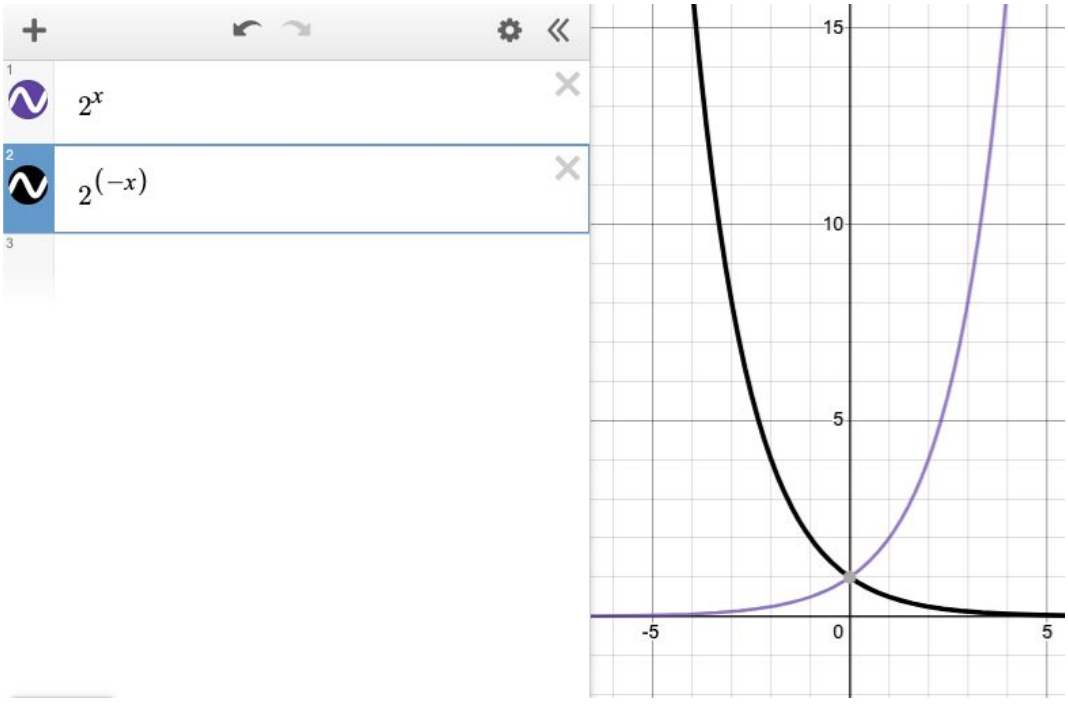
_____



Make the X in our parent function NEGATIVE? What does the graph look like? **Don't forget parenthesis!!**_____



This function looks the same. Let's try this transformation with the parent function y= 2^x .



These transformations _____ our functions over the x-axis and y-axis, called _____. Our formulas for these transformations are _____(x-axis) and _____(y-axis).

Practice:
What do the transformations do to the functions?

1. $f(x)+2$
2. $f(x)-3$
3. $f(x+4)$
4. $f(x-5)$
5. $y=(x+3)^2$

What transformation is happening to the functions? What's our formula?

1. $4x^2$
2. $\frac{1}{4}x^2$
3. x^2+4
4. $(x-4)^2$