**Pre-AP Algebra 2 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Explore/Explain Transformations Date \_\_\_\_\_\_\_\_\_\_ Pd\_\_\_**

**(Use two different colors of pencils for sketching and on the graphs provided)**

1. Explore Vertical Translations
   1. Enter

2. Now, one at a time, enter the following 4 functions into and compare to the parent function . Record your observations below the graph.

a.  b. c. d. 

1. Generalize: What happens to the graph of a function when you add or subtract a constant to the function rule?
2. Explore Horizontal Shifts
   1. Enter 
   2. Now, one at a time, enter the following 4 functions into and compare to the parent function . Record your observations below the graph.

a.  b. c. d. 

1. Generalize: What happens to the graph of a function when you add or subtract a number inside parenthesis with x?
2. Explore Vertical Stretches and Compressions
   1. Enter 
   2. Now, one at a time, enter the following 4 functions into and compare to the parent function . Record your observations below the graph.

a.  b. a. b. 

1. Generalize: What happens to the graph of a function when you multiply the function by a number not in parenthesis?
2. Explore Horizontal Stretches and Compressions
   1. Enter 
   2. Now, one at a time, enter the following 4 functions into and compare to the parent function . Record your observations below the graph.

a. b. a. b. 

1. Generalize: What happens to the graph of a function when you multiply x by a number inside the parenthesis?
2. Explore Reflections
   1. Enter the following into  and 

a.  b.

* 1. Generalize: What happens to the graph of a function when you multiply the function by a negative outside of the function?
  2. Generalize: What happens to the graph of a function when you multiply x by a negative inside of the function with x?

1. Multiple transformations
   1. Enter the following into  and 

a.  b.  c.

* 1. Generalize: What happens to the graph of a function when you multiply by a negative inside parenthesis and also subtract 3 inside the parenthesis? Which do you do first?

**Pre-AP Algebra 2 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Evaluate Date \_\_\_\_\_\_\_\_\_\_ Pd\_\_\_**

Given the equation  write the new equation, in y= form, after the following transformations. Also describe the transformation in words.

1.  2. 

Equation: Equation:

Words: Words:

3.  4. 

Equation: Equation:

Words: Words:

5.  6. 

Equation: Equation:

Words: Words:

7.  8. 

Equation: Equation:

Words: Words:

9. 

Equation:

Words: