**Graphing Square Root Functions**

Make a table for each function.

F(x) = x2 f(x) = $\sqrt{x}$

x f(x)

x f(x)

0 0

1 1

2 2

3 3

4 4

5 5

6 6

7 7

8 8

9 9

Ignore the points with decimals. What do you notice about the other points?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

These functions are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of each other. By definition, this means the \_\_\_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Plot the points from the tables above.

As a result, the graphs have the same numbers in their points but the \_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_ coordinates have \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

This causes the graphs to have the \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ over the line \_\_\_\_\_\_\_\_\_\_\_\_.

**The Square Root Function**

Reflect the function f(x) = x2 over the line y = x.

 Problems? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

We have to define the Square Root \_\_\_\_\_\_\_\_\_\_\_\_\_\_ as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This means that we will only use the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ side of the graph.

The result: f(x) = $\sqrt{x}$ **Characteristics of the graph**

 Vertex End Behavior

 Domain

 Range

 Symmetry

 Pattern

**Transforming the Graphs**

Now that we know the shapes we can use what we know about transformations to put that shape on the coordinate plane.

Remember:

Translate Reflect Dilate

1. f(x) = $\sqrt{x-3}$
2. f(x) = $\sqrt{x}+ 4$
3. f(x) = $-\sqrt{x}$
4. f(x) = $\sqrt{-x}$
5. f(x) = $2\sqrt{x+3}$
6. f(x) = $\frac{1}{2}\sqrt{x}$

Sometimes the functions are not in graphing form. We may have to use some of our algebra skills to transform the equations into something we can use.

Ex: f(x) = $\sqrt{4x-12}$ This is not in graphing form.

Ex: f(x) = $\sqrt{9x+36}-5$ This is not in graphing form.