Graphing Square Root Functions

Make a table for each function.

$F(x) = x^2$

x	f(x)
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	

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

x	f(x)
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	

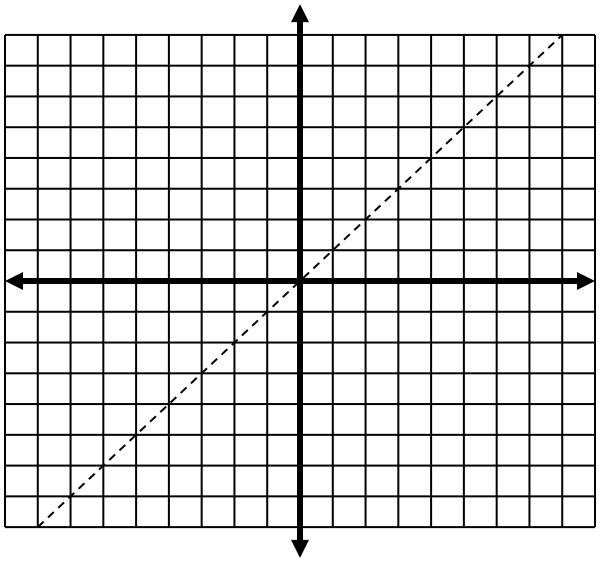
Ignore the points with decimals. What do you notice about the other points?

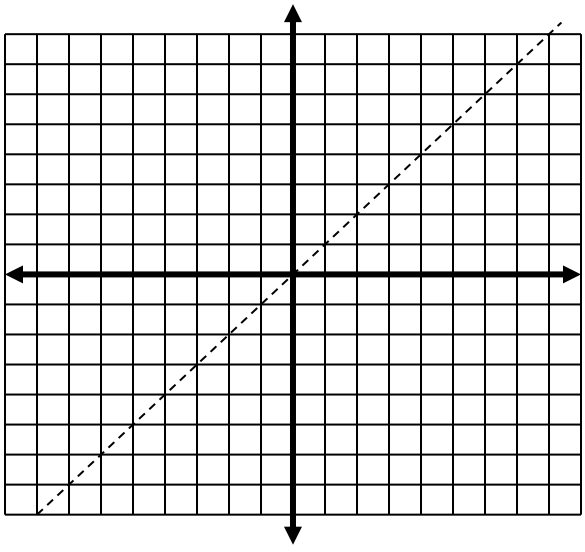
_____

_____

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

Plot the points from the tables above.



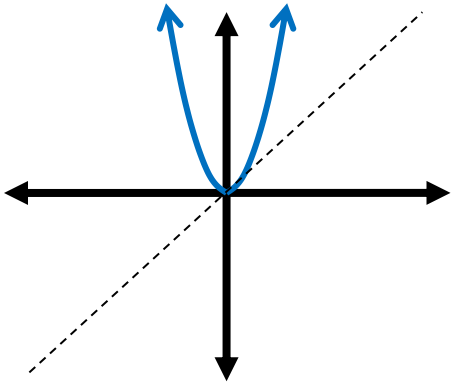


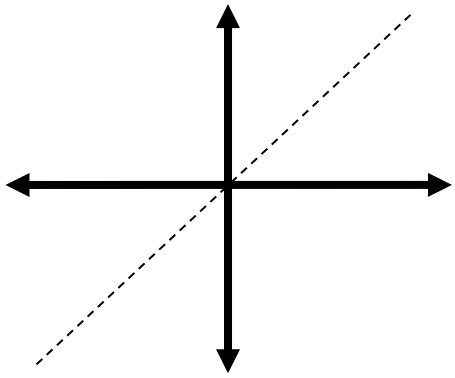
As a result, the graphs have the same numbers in their points but the _____ and the _____ coordinates have _____ _____.

This causes the graphs to have the _____ _____ but to be _____ over the line _____.

The Square Root Function

Reflect the function $f(x) = x^2$ over the line $y = x$.



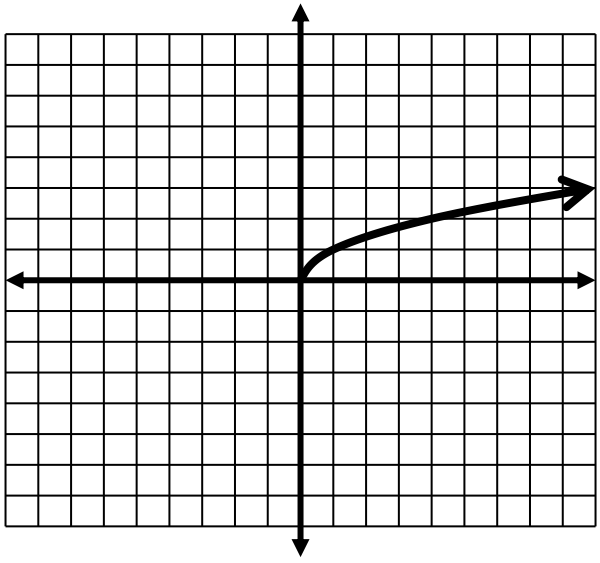


Problems? _____

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

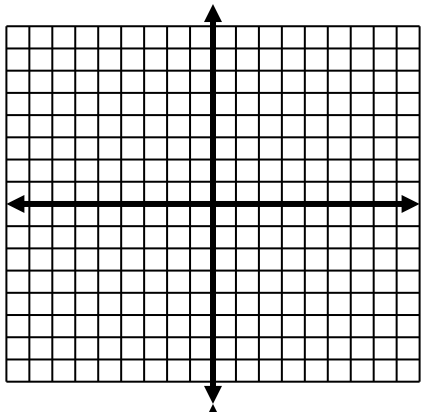
Transforming the Graphs

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

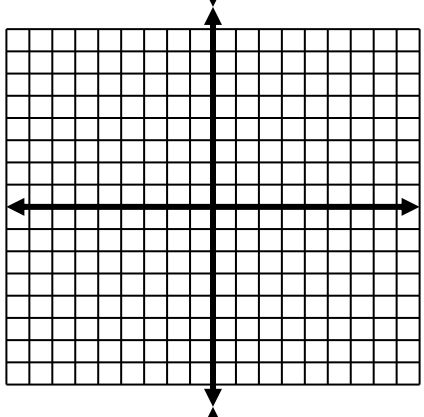
Remember:

Translate Reflect Dilate

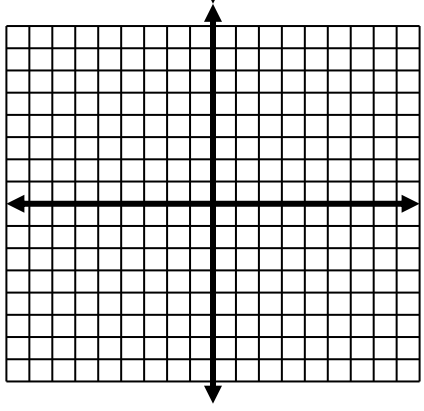
1) f(x) = $\sqrt{x-3}$



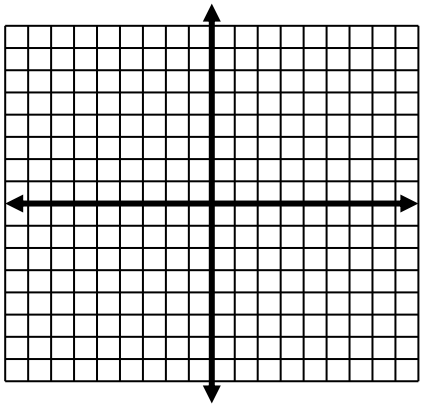
2) f(x) = $\sqrt{x}+4$



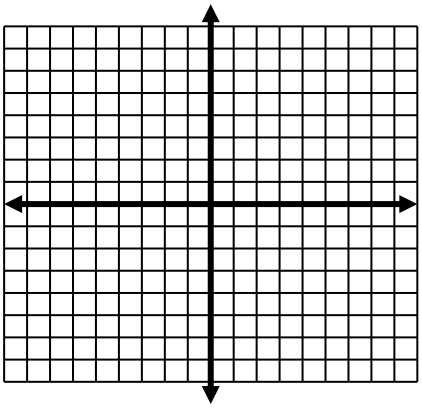
3) f(x) = $-\sqrt{x}$



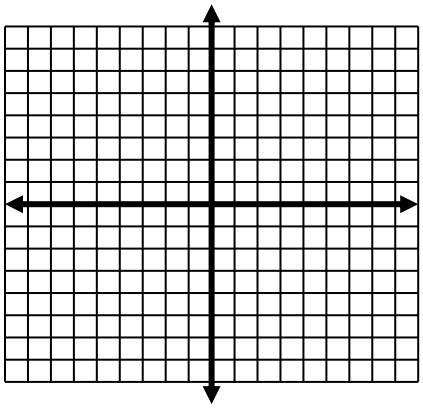
4) f(x) = $\sqrt{-x}$



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.