

That's Radical Dude:

Let's explore radical functions. By definition, a radical function is one that contains any sort of radical. We are going to explore two of the more common radical functions, the square root and the cube root.

Complete the table of value for the function, $f(x) = \sqrt{x}$. This is the square root function.

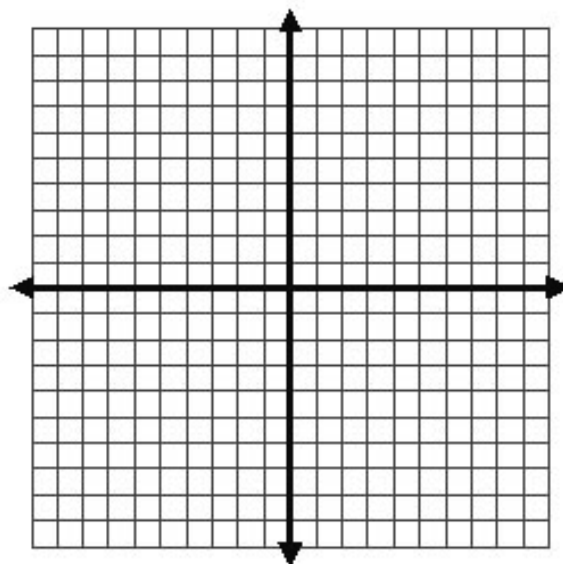
x	-4	-3	-2	-1	0	1	2	3	4
$f(x)$									

What did you notice about some of the values? If you typed the function into a calculator and tried to evaluate it for some of the x -values, what message appeared? Why?

Graph the function in the grid provided below.

What is the domain of this function?

What is the range of the function?



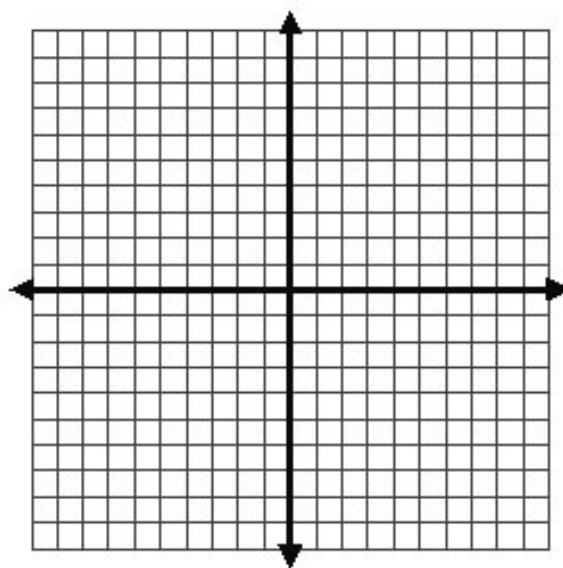
Georgia Department of Education
Georgia Standards of Excellence Framework
GSE II/Advanced Algebra • Unit 4

Complete the table of values for the function, $f(x) = \sqrt{x + 2}$

x	-4	-3	-2	-1	0	1	2	3	4
$f(x)$									

What did you notice about some of the values? If you typed the function into a calculator and tried to evaluate it for some of the x -values, what message appeared? Why?

Graph the function in the grid provided below:



What is the domain of this function?

What is the range of the function?

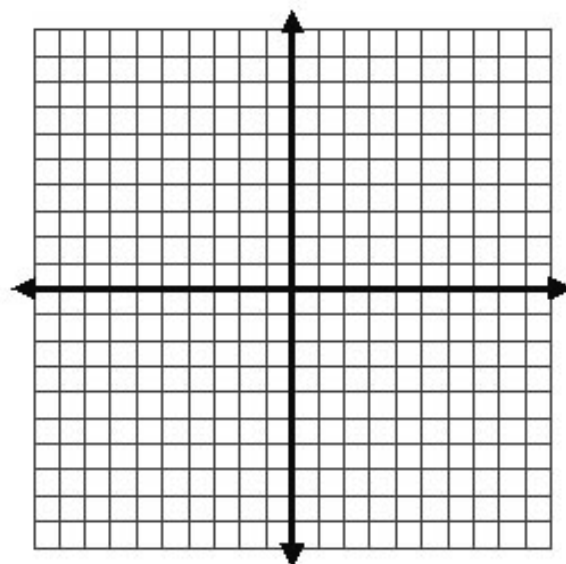
Georgia Department of Education
 Georgia Standards of Excellence Framework
GSE II/Advanced Algebra • Unit 4

Complete the table of values for the function, $f(x) = \sqrt{9 - x^2}$.

x	-4	-3	-2	-1	0	1	2	3	4
$f(x)$									

What did you notice about some of the values? If you typed the function into a calculator and tried to evaluate it for some of the x -values, what message appeared? Why?

Graph the function in the grid provided below.



What is the domain of this function?

What is the range of the function?

Using the three examples above, make a conjecture about the domain of a radical function.

Use your conjecture to determine the domain of this function, $f(x) = \sqrt{2x + 5}$, without graphing it. Check your solution by graphing it on a graphing calculator.

Now let's look at another common radical function, the cube root.

Georgia Department of Education
Georgia Standards of Excellence Framework
GSE II/Advanced Algebra • Unit 4

Complete the table of values for the function, $f(x) = \sqrt[3]{x}$.

x	-8	-6	-2	-1	0	1	2	6	8
$f(x)$									

Do you get any of the same error messages for this function that you did in the table of values for the square root function? Why do you think that is so?

Graph the function in the grid provided below.

What is the domain of this function?

What is the range of the function?

