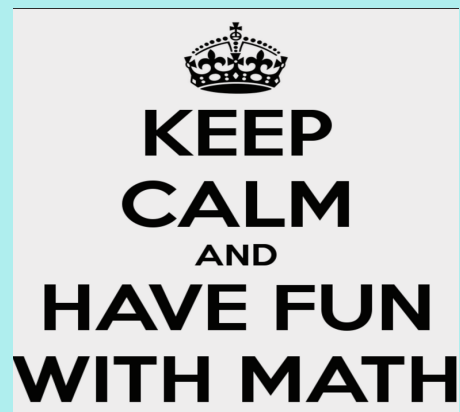


Radical Functions



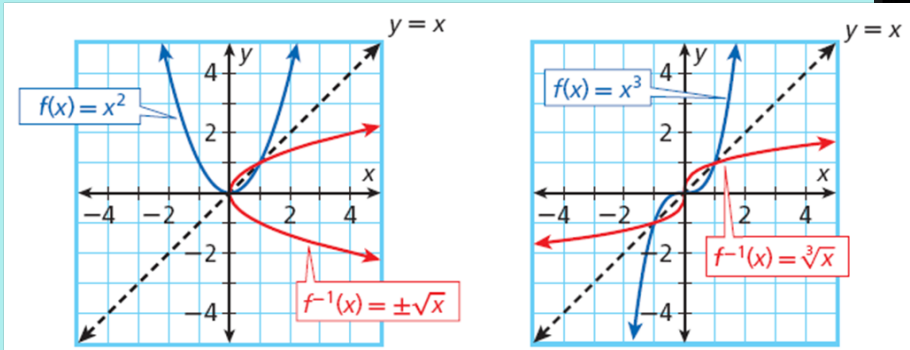
What are our objectives?

~Graph radical functions.

~Transform radical functions by changing parameters.

Back to the Future...

Let's look at these functions



The blue and red functions are *inverses* of each other. In other words, the coordinate of x and y have been switched.

We'll look at how to find and define inverses of each other next chapter.

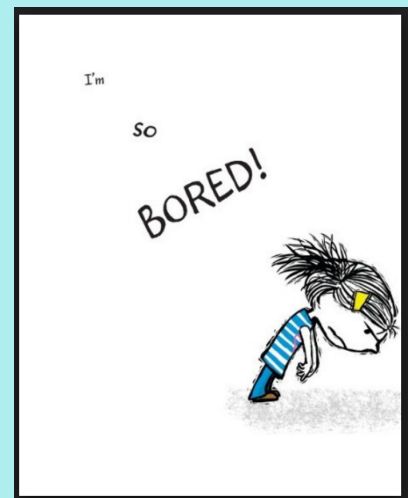
Why do we care?

We're going to be looking at the inverse function of $f(x) = x^2, x \geq 0$

A **radical function** is a function whose rule is a radical expression.

A **square-root function** is a radical function involving \sqrt{x} . The square-root parent function is $f(x) = \sqrt{x}$. The cube-root parent function is

$$f(x) = \sqrt[3]{x}.$$



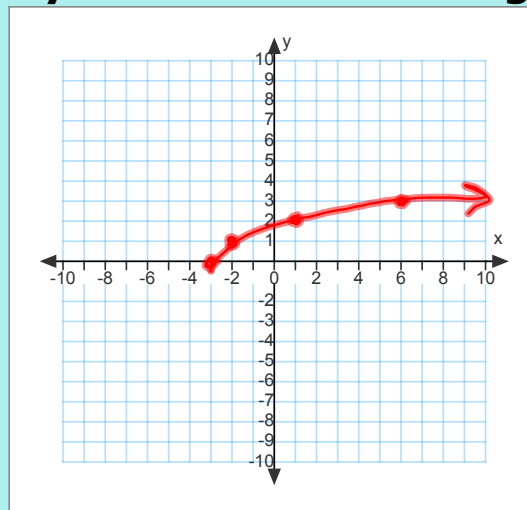
Let's Jump Right In!

Graph each function and identify its domain and range.

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

$$-4 + 3 \Rightarrow \sqrt{-1} = i$$

X	f(x)
-3	0
-2	1
1	2
6	3

Domain:
 $[-3, \infty)$ Range:
 $[0, \infty)$ 

2) $f(x) = 2\sqrt[3]{x-2}$

X	f(x)
-6	-4
1	-2
2	0
3	2
10	4

Domain:
 $(-\infty, \infty)$ Range:
 $(-\infty, \infty)$ 