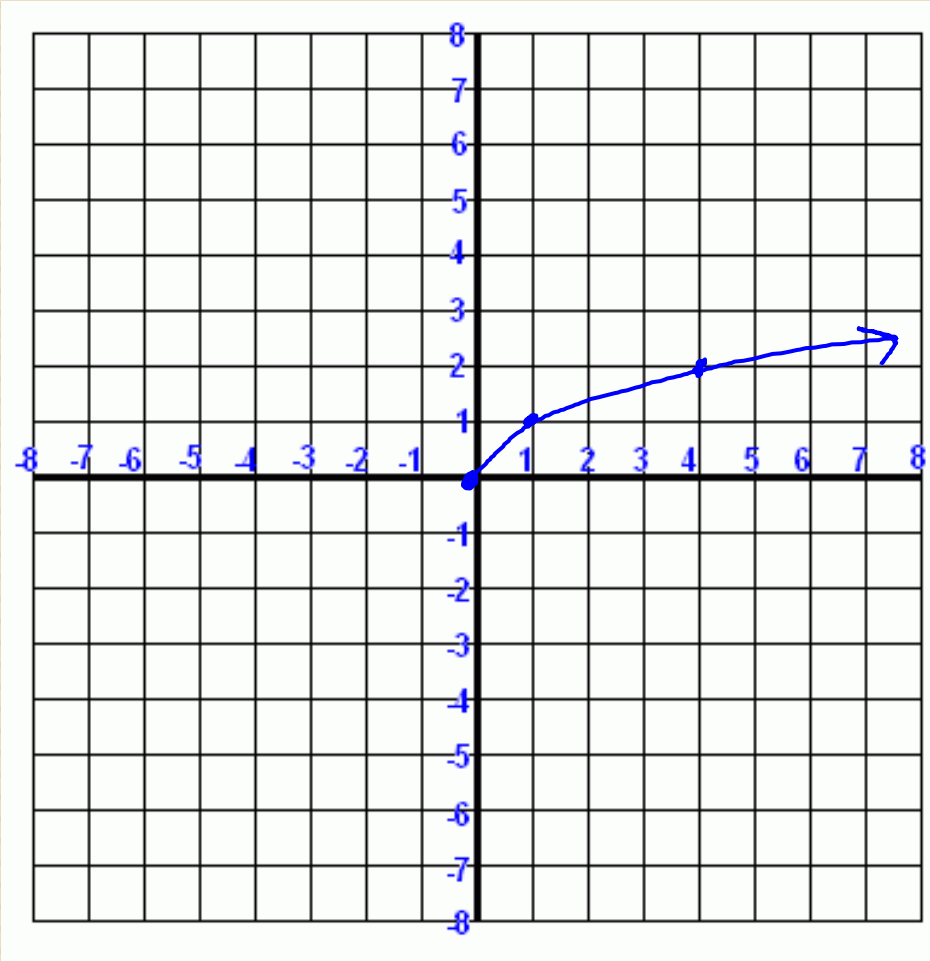
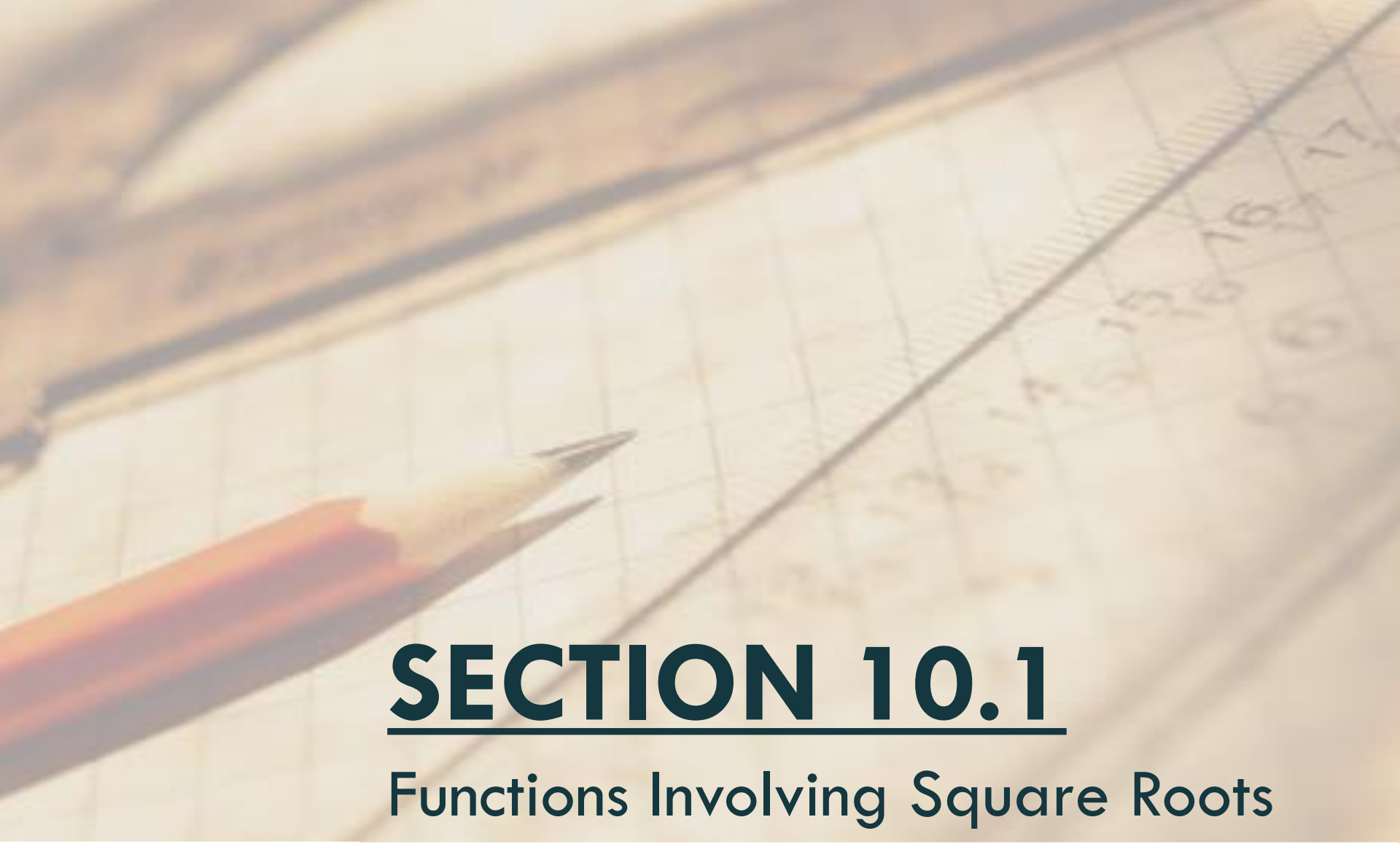
Do Now:

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

Use the table below

X	Y
-1	N/A
0	0
1	1
4	2
9	3





SECTION 10.1

Functions Involving Square Roots

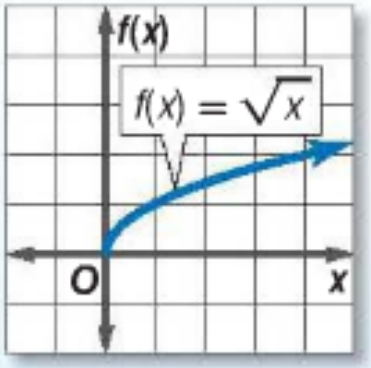
SWBAT:

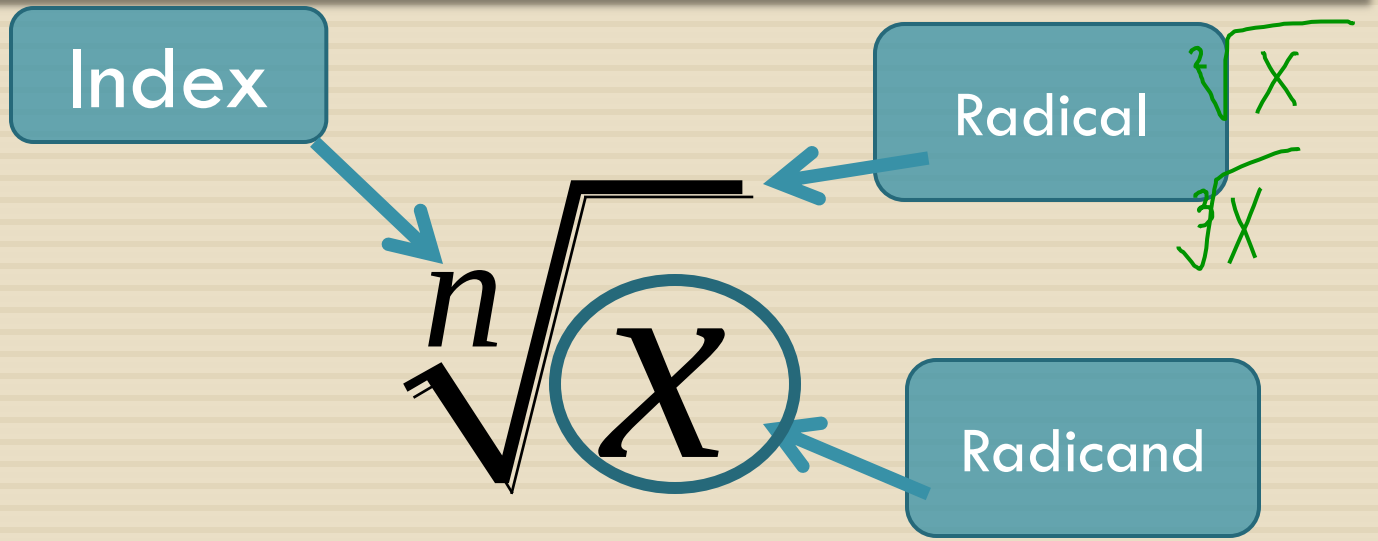
- Evaluate and graph a function using square roots.

Square Root Function:

Key Concept — Square Root Function

Parent function:	$f(x) = \sqrt{x}$
Type of graph:	curve
Domain:	$\{x \mid x \geq 0\}$
Range:	$\{y \mid y \geq 0\}$



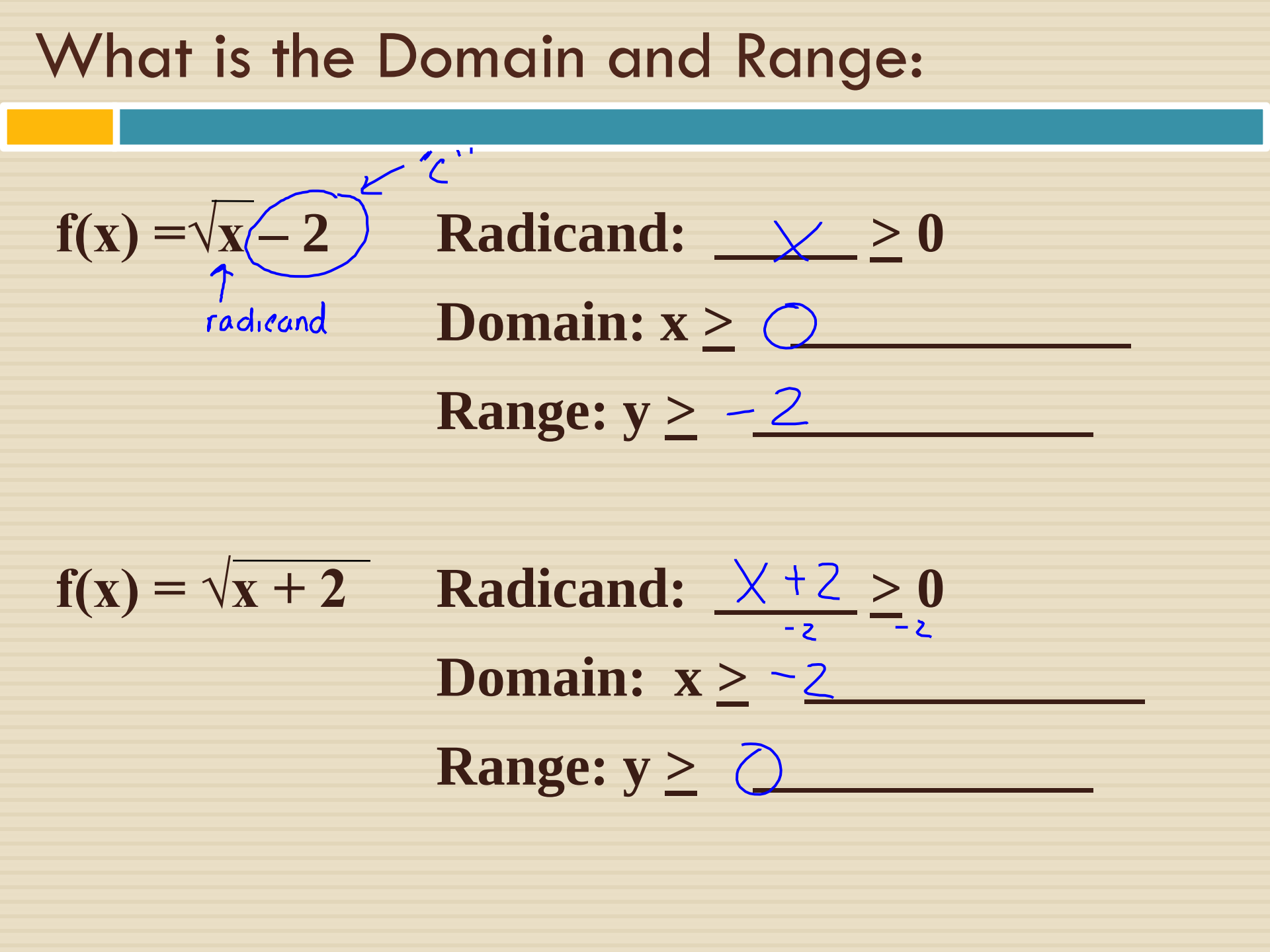


Definitions:

- ***Domain:***
  - a collection of input values (x-values)
  - To find domain of radical functions
    - set the radicand $\geq$ 0 and solve

- ***Range:***
  - a collection of output values (y-values)
  - To find the range of radical functions:
    - y $\geq$ "# added/sub to radical"

What is the Domain and Range:



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

Radicand: $x \geq 0$

Domain: $x \geq 0$

Range: $y \geq -2$

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

Radicand: $x + 2 \geq 0$ (−2 −2)

Domain: $x \geq -2$

Range: $y \geq 0$

What is the Domain and Range:

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

Radicand: $x \geq 0$

Domain: $x \geq 0$

Range: $y \geq 0$

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

Radicand: $2x - 4 \geq 0$

$\frac{2x}{2} \geq \frac{4}{2}$

$x \geq 2$

Domain: $x \geq 2$

Range: $y \geq 0$

Graphing Radicals:

Graph the equation $y = 2\sqrt{x}$

Create a table.

x	$y = 2\sqrt{x}$
0	0
1	2
4	4
9	6

domain $x \geq 0$

range $y \geq 0$

↓ perfect squares

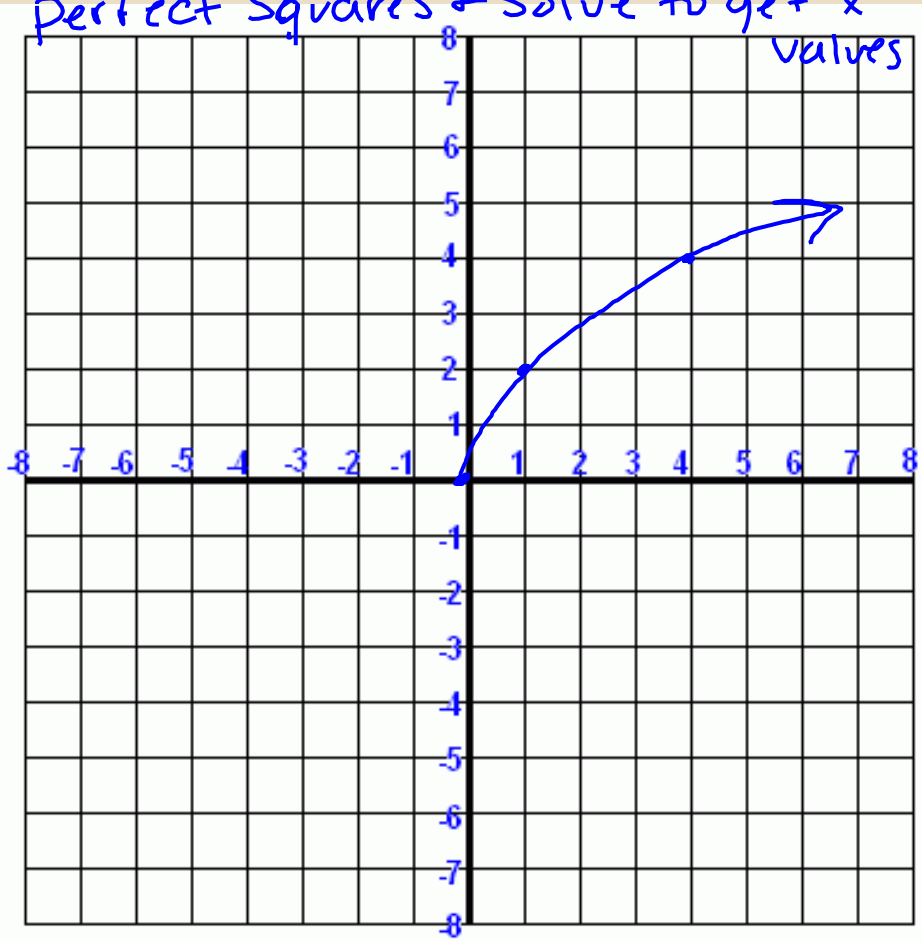
$x = 0$

$x = 1$

$x = 4$

$x = 9$

* Set the radicand equal to perfect squares & solve to get x values



Graphing Radicals:

Graph the equation $y = \sqrt{x-2}$

$x-2 \geq 0$
$+2 \quad +2$
$x \geq 2$

Create a table.

Domain $x \geq 2$

Range $y \geq 0$

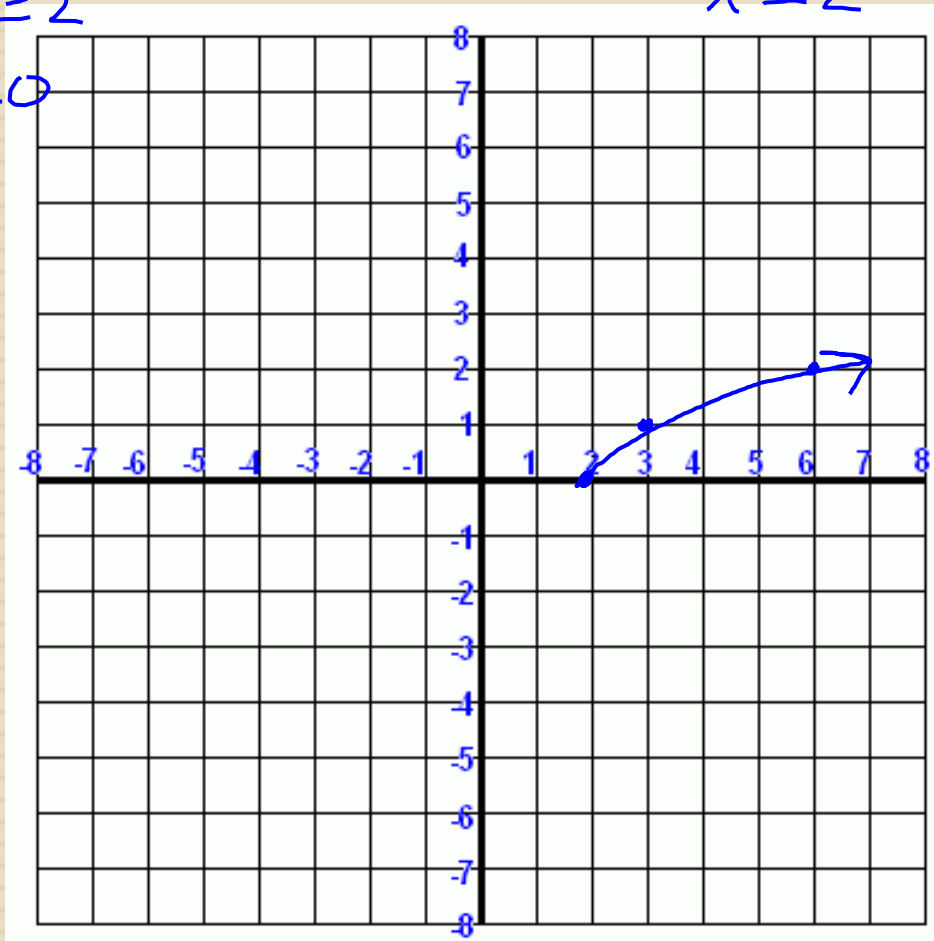
x	$y = \sqrt{x-2}$
2	0
3	1
6	2
11	3

$x-2=0$

$x-2=1$

$x-2=4$

$x-2=9$



Graphing Radicals:

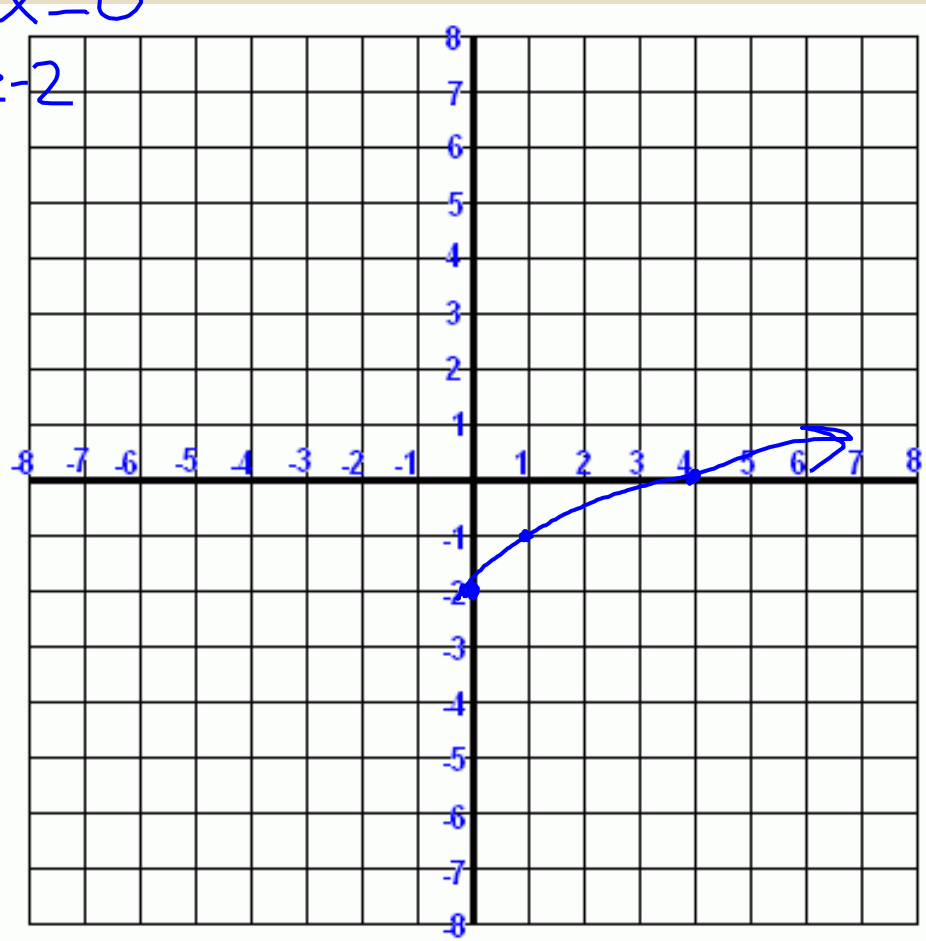
Graph the equation $y = \sqrt{x} - 2$

Create a table.

Domain: $x \geq 0$

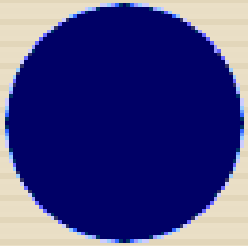
range: $y \geq -2$

x	$y = \sqrt{x} - 2$
0	-2
1	-1
4	0
9	1



Did We Reach Our Objective?

- SWBAT understand how to graph radical equations.



Homework

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