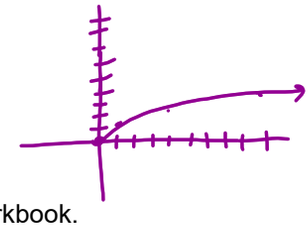
WARM UP

1) Complete the table of values for:

$y = \sqrt{x}$

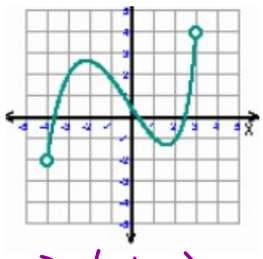
x	y
-4	
0	0
1	1
4	2
9	3



Then graph the table of values on graph paper in your workbook.
Last, use your calculator to confirm your graph.

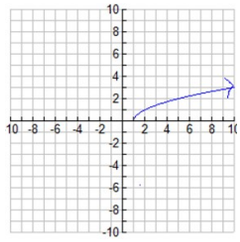
Write the domain and range of each graph using interval notation.

2)



D $(-4, 3)$
R $(-2, 4)$

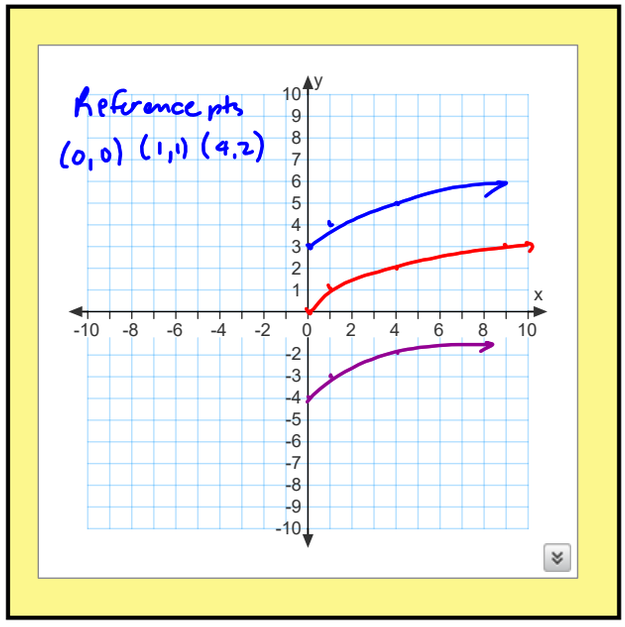
3)



D $[1, \infty)$
R $[0, \infty)$

Jan 31-2:41 PM

7.8 Graphing Radical Equations



On your graph paper, you should have the graph of:

$$y = \sqrt{x}$$

Now state the domain and range.
D: $[0, \infty)$ R: $[0, \infty)$

Predict what this graph would look like.
Then confirm with calculator.

$$y = \sqrt{x} + 3$$ up 3

State the domain and range.
D: $[0, \infty)$ R: $[3, \infty)$

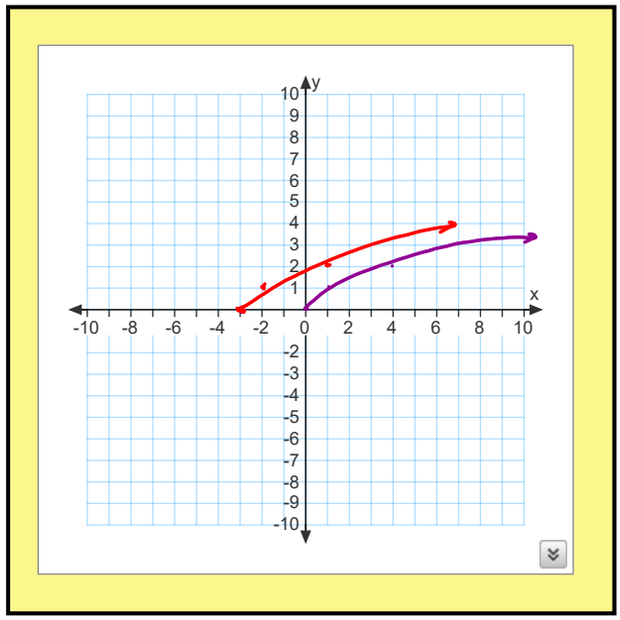
$$y = \sqrt{x} + 5$$

State the domain and range.
D: $[0, \infty)$ R: $[5, \infty)$

$$y = \sqrt{x} - 4$$

State the domain and range.
D: $[0, \infty)$ R: $[-4, \infty)$

Feb 9-9:08 AM



On your graph paper, you should have the graph of:

$$y = \sqrt{x}$$

Predict what this graph would look like. Then confirm with calculator.

$$y = \sqrt{x+3}$$ left 3

State the domain and range.

D: $[-3, \infty)$ R: $[0, \infty)$

$$y = \sqrt{x+5}$$

State the domain and range.

D: $[-5, \infty)$ R: $[0, \infty)$

$$y = \sqrt{x-4}$$ right 4

State the domain and range.

D: $[4, \infty)$ R: $[0, \infty)$

Feb 9-9:08 AM

Graphing Radical Equations

Summary What happens to the graph of $y = \sqrt{x}$?

$$y = \sqrt{x} + a$$

move up

$$y = \sqrt{x} - a$$

moves down

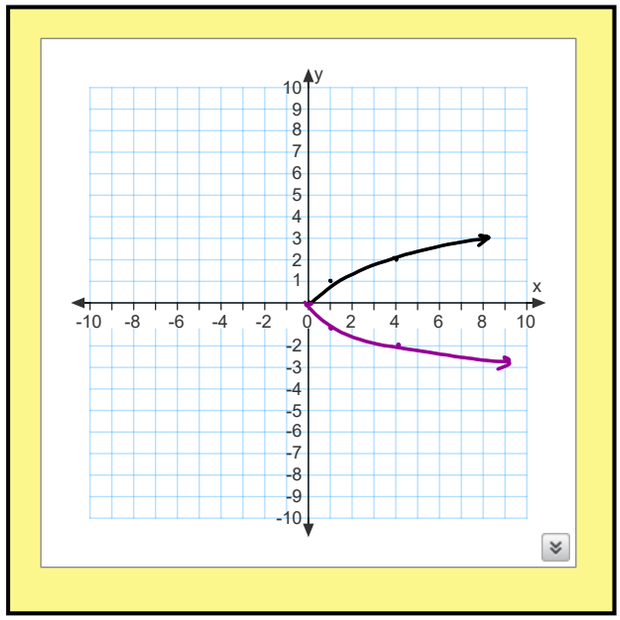
$$y = \sqrt{x+a}$$

move left

$$y = \sqrt{x-a}$$

moves right

Feb 9-9:08 AM



On your calculator, graph

$$y = \sqrt{x}$$

$$y = -\sqrt{x}$$

What does the negative in front of the square root do to the graph? reflect over x-axis

State the domain and range.

D: $[0, \infty)$ R: $(-\infty, 0]$

Feb 9-9:08 AM

Summary

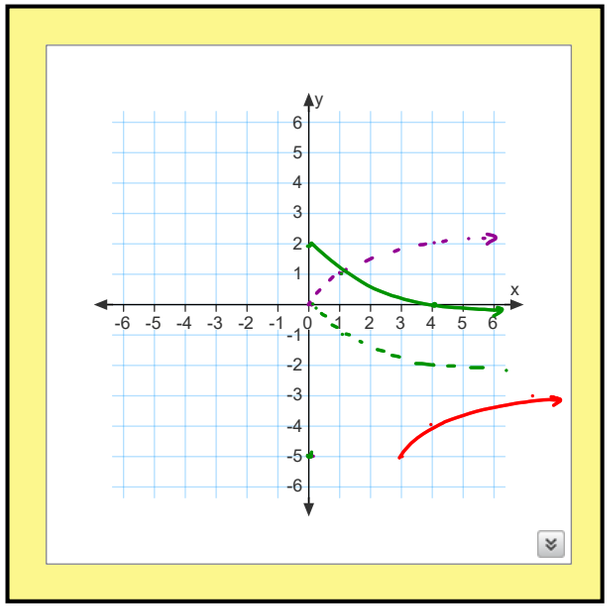
$$y = \sqrt{x}$$

$$y = -\sqrt{x}$$

A negative in front of the square root reflects over x-axis and changes the range!

Feb 9-10:59 AM

The reference points we will use for graphing the square root function by hand are: (0, 0), (1, 1), (4, 2).



Graph by hand

$$y = \sqrt{x-3} - 5$$

right 3, down 5

$$y = -\sqrt{x} + 2$$

flip over x axis
up 2

Jan 8-6:14 AM

How could you state the domain of a square root function without the graph?

$$y = \sqrt{x+3}$$

$x + 3$ (pull down)

anything inside the square root must be greater than or equal to zero

In math that looks like: $x + 3 \geq 0$ so.... $x \geq -3$

$-3 \quad -3$

Interval Notation would be: $[-3, \infty)$

domain? $y = \sqrt{2x - 12}$

$2x - 12 \geq 0$

$2x \geq 12$

$x \geq 6$ $[6, \infty)$

Jan 29-10:12 AM

Now try graphing on your calculator:

$$y = \sqrt[3]{x}$$

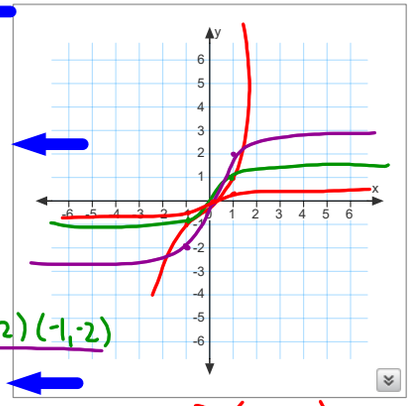
The reference points we use for the cube root graph are:

(0, 0), (1, 1), (-1, -1)

Same as cubic graph but the 's' shape is sideways!

What would the equation be if you shifted this graph 2 units to the left and 3 units down?

$y = \sqrt[3]{x+2} - 3$



What would the graph of $y = 2\sqrt[3]{x}$ look like? Why?

Vertical stretch

$y * 2$

$(0,0)\ (1,2)\ (-1,-2)$

What would the graph of $y = \frac{1}{2}\sqrt[3]{x}$ look like? Why?

Vertical Shrink

$y * \frac{1}{2}$

$(0,0)\ (1,\frac{1}{2})\ (-1,-\frac{1}{2})$

D: $(-\infty, \infty)$

R: $(-\infty, \infty)$

Feb 9-7:41 AM

GO COUGARS!

HOMEWORK 7.8

p. 417 # 7-23 odd

and

WB pg. 62

#3, 4, 8, 11, 13-18

Feb 9-12:38 PM