

Algebra 1B Live Lesson

U5L3: Graphing Square Root Functions
(Chapter 10-5 in textbook)



Agenda



1. Review selected problems and topics from U5L3 - Graphing Square Root Functions

2. Use the 2-column note system to take better notes in math class. Bring your math notebook and pen or pencil to each math LiveLesson class.

2-Column Notes Template



1. Announcements/To Do's
2. School-Wide Learner Outcomes
3. LL Objectives
4. Vocabulary words
5. Problems
6. Summary (End of class)

1. Write down important details.
2. What are you going to work on this week?
3. Write down the main idea of the lesson.
4. Definitions (fill in as we go)
5. Steps to solving problems
6. 1 or 2 sentences about the LL class.

Reminders and To – Do's



Information

1. Complete 1 math lesson per day.
2. Check your WebMail every day
3. Be prepared to spend 4 - 6 hours per day on schoolwork.
4. Remind your Learning Coach to take daily attendance

What to do

1. Go to your Planner in Connexus to find the math lesson for the day
2. Go to Connexus to find WebMail
3. Complete lessons for the day from your Planner. Do not get behind on lessons.
4. Have your Learning Coach log into Connexus daily.

Reminders and To – Do's



Information

5. Go to the Message Board first for information about our math class.

6. Contact Mr. Elizondo for math questions.

Remember: You need at least 2 phone calls with Mr. Elizondo per semester.

What to do

6. Call (559) 549 - 3244 and leave a voicemail if call is not answered.

Make an appointment at:
<https://elizondo.youcanbook.me>

Send a WebMail

U5L3 – California Common Core State Standards



- HSF-IF.C.7: Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
- HSF-BF.B.3: Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

U5L3 - Vocabulary



- square root function

U5L3 - Objectives



- Graph square root functions
- Translate graphs of square root functions

U5L3 - Introduction



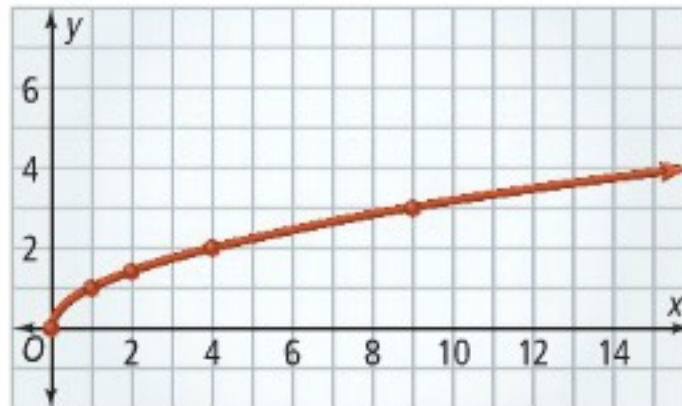
take note

Key Concept Square Root Functions

A **square root function** is a function containing a square root with the independent variable in the radicand. The parent square root function is $y = \sqrt{x}$.

The table and graph below show the parent square root function.

x	y
0	0
1	1
2	1.4
4	2
9	3



Essential Understanding You can graph a square root function by plotting points or using a translation of the parent square root function.

U5L3 - Finding the Domain of a Square Root Function



For real numbers, the value of the radicand cannot be negative. So the domain of a square root function is limited to values of x for which the radicand is greater than or equal to 0.

What is the domain of the function?

$$y = 2\sqrt{3x - 9}$$

$$3x - 9 \geq 0$$

$$3x \geq 9$$

$$x \geq 3$$

The domain of the function is the set of real numbers greater than or equal to 3.

U5L3 - Graphing a Square Root Function



Engineering Graph the function $I = \frac{1}{5}\sqrt{P}$, which gives the current I in amperes for a certain circuit with P watts of power. When will the current exceed 2 amperes?

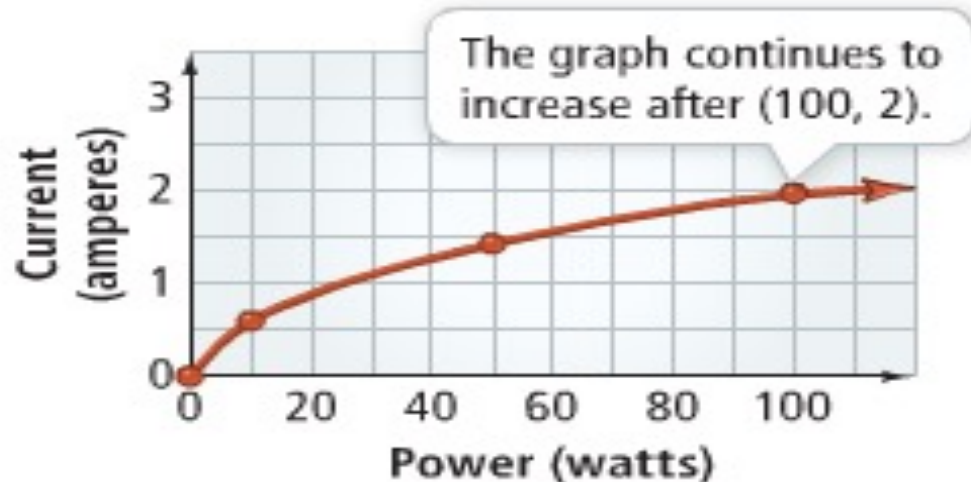
Step 1 Make a table.

Current in Circuit

Power (watts)	Current (amperes)
0	0
10	0.6
50	1.4
100	2

Step 2 Plot the points on a graph.

Current in Circuit



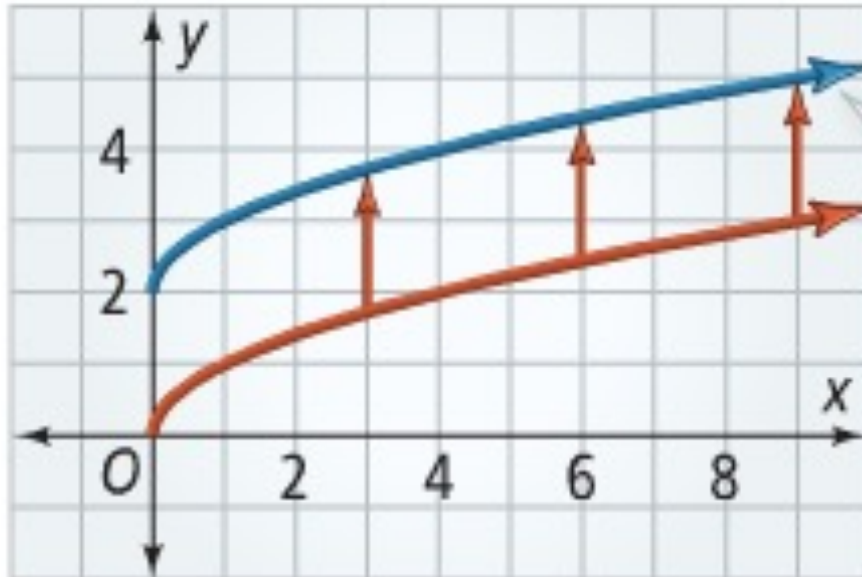
The current will exceed 2 amperes when the power is more than 100 watts.

U5L3 - Graphing a Vertical Translation



For any positive number k , graphing $y = \sqrt{x} + k$ translates the graph of $y = \sqrt{x}$ up k units. Graphing $y = \sqrt{x} - k$ translates the graph of $y = \sqrt{x}$ down k units.

What is the graph of $y = \sqrt{x} + 2$?



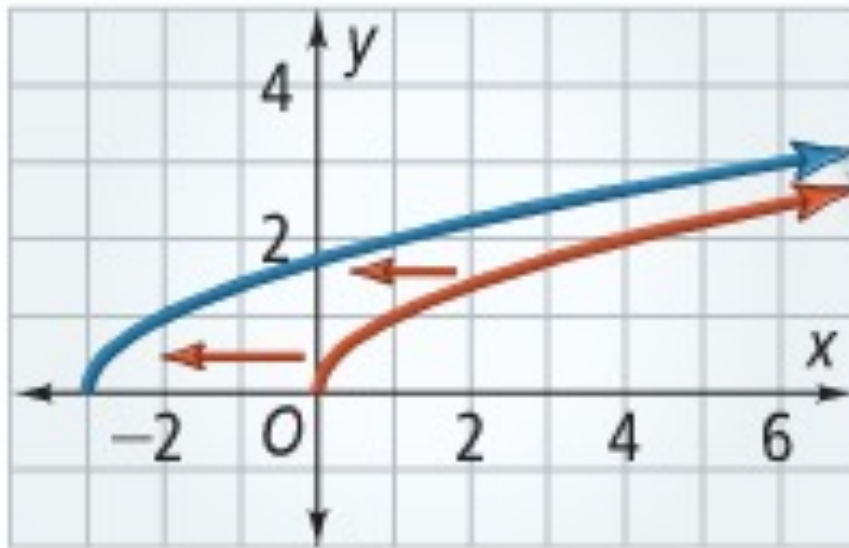
For the graph of $y = \sqrt{x} + 2$, the graph of $y = \sqrt{x}$ is shifted 2 units up.

U5L3 - Graphing a Horizontal Translation



For any positive number h , graphing $y = \sqrt{x+h}$ translates the graph of $y = \sqrt{x}$ to the left h units. Graphing $y = \sqrt{x-h}$ translates the graph of $y = \sqrt{x}$ to the right h units.

What is the graph of $y = \sqrt{x+3}$?



For the graph of $y = \sqrt{x+3}$, the graph of $y = \sqrt{x}$ is shifted 3 units to the left.

Questions?



- Check the Message Board first
- Send a WebMail
- You can also make an appointment at <https://elizondo.youcanbook.me>
- You can also call me at (559) 549-3244. If I'm not available to answer your call, please leave a voicemail with your full name and phone number.

U5L3 - Review Problems



Find the domain of each function.

$$1.) y = \sqrt{x + 3}$$

What can't x be? Set what's inside the square root symbol \geq to 0.

$$x + 3 \geq 0$$

$$x + 3 - 3 \geq 0 - 3$$

$$x \geq -3$$

U5L3 - Review Problems



Find the domain of each function.

$$2.) y = \frac{1}{2}\sqrt{12-x}$$

What can't x be? Set what's inside the square root symbol \geq to 0.

$$12 - x \geq 0$$

$$12 - 12 - x \geq 0 - 12$$

$$-x \geq 0 - 12$$

$$-x \geq -12$$

$$(-1) - x \geq -12(-1)$$

$$x \leq 12$$

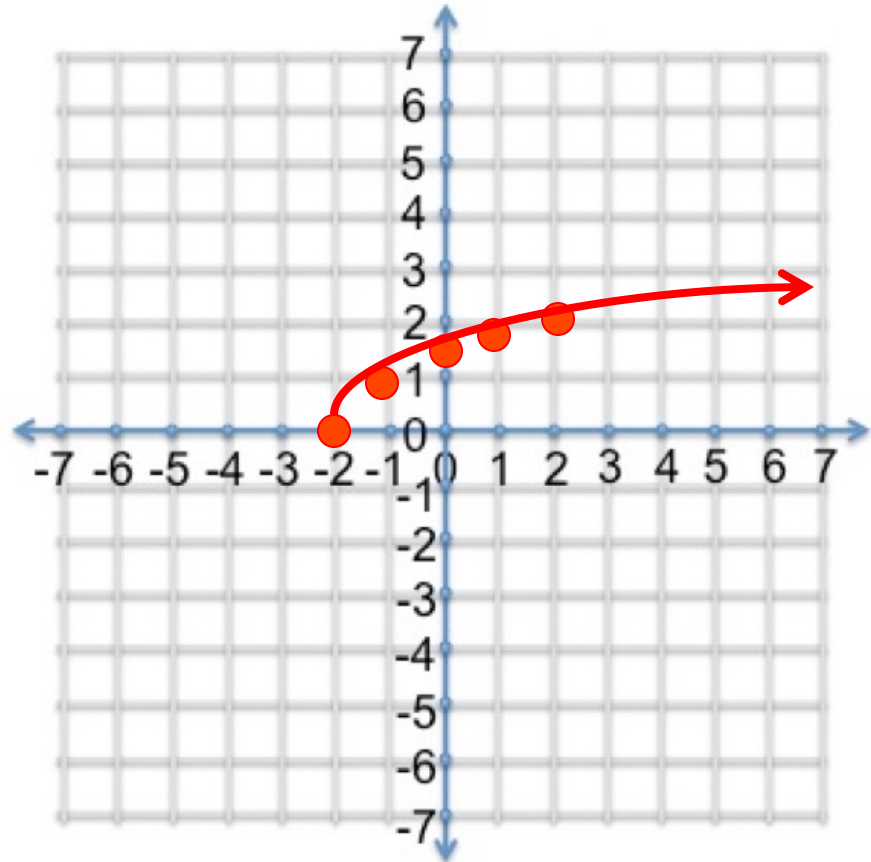
U5L3 - Review Problems



Make a table of values and graph the function.

3.) $y = \sqrt{x+2}$

x	y
-2	0
-1	1
0	1.4
1	1.7
2	2

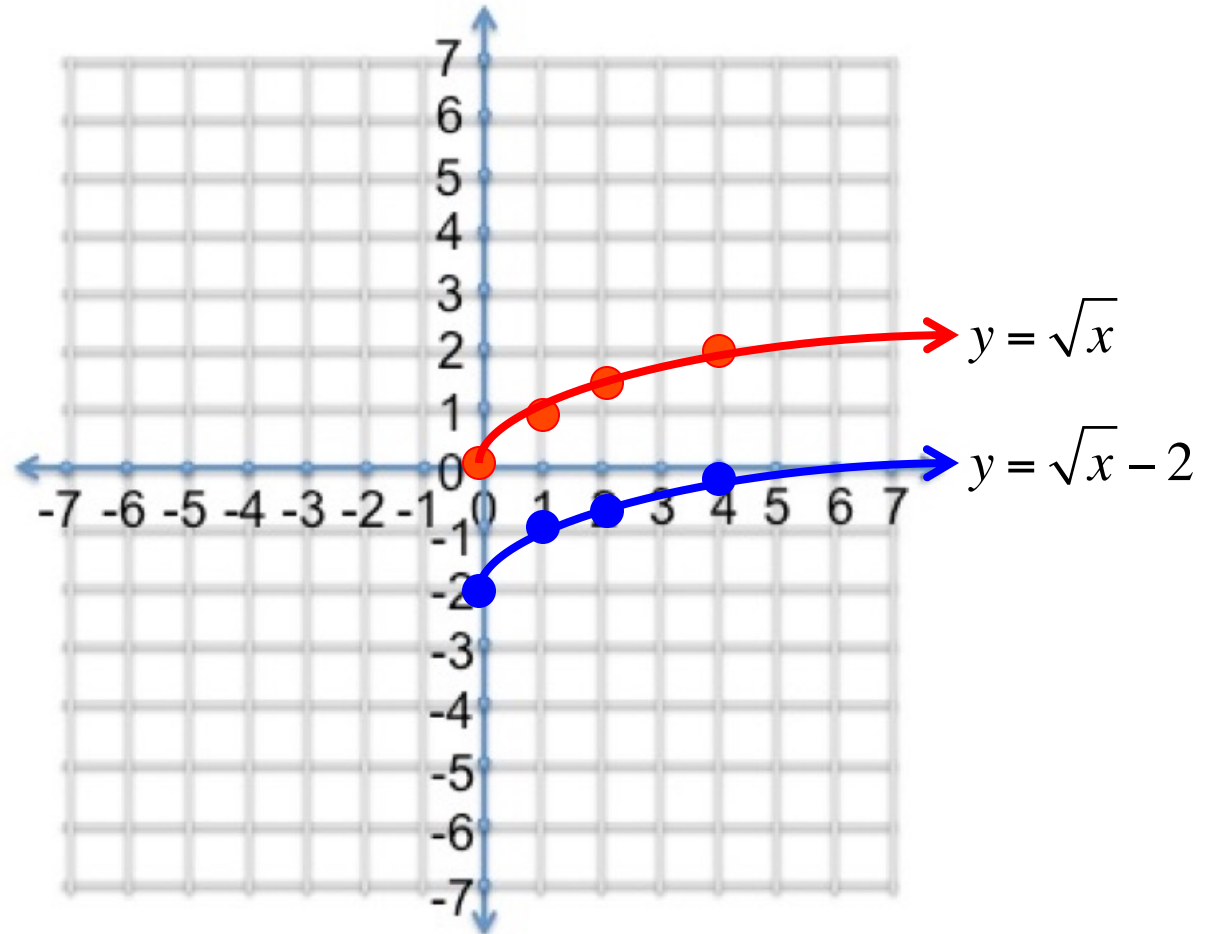


U5L3 - Review Problems



Graph each function by translating the graph of $y = \sqrt{x}$.

4.) $y = \sqrt{x} - 2$



U5L3 - Review Problems



Graph each function by translating the graph of $y = \sqrt{x}$.

5.) $y = \sqrt{x+1} - 2$

