

# Activator

How do you put the Root (Radical) into the calculator?

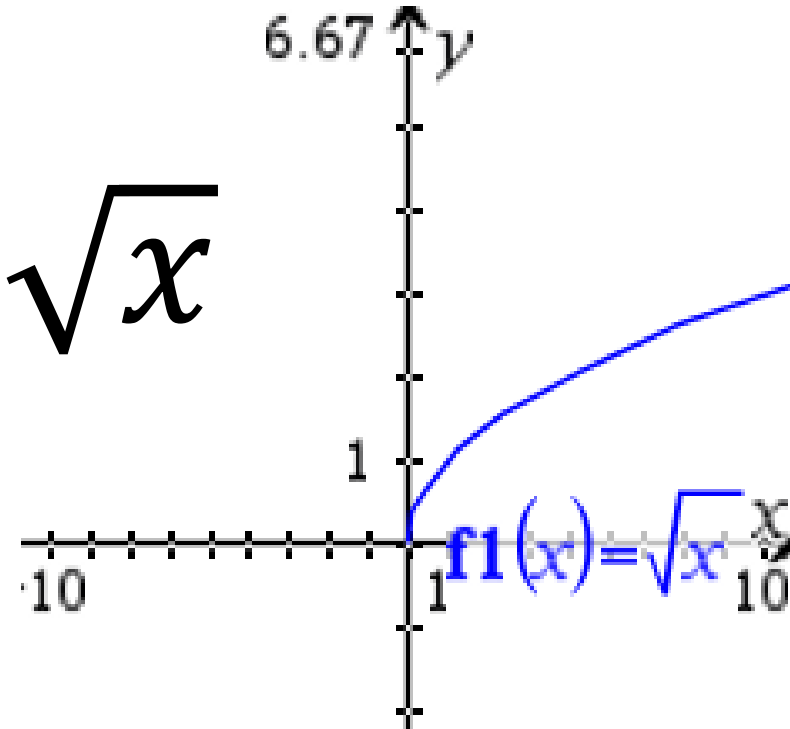
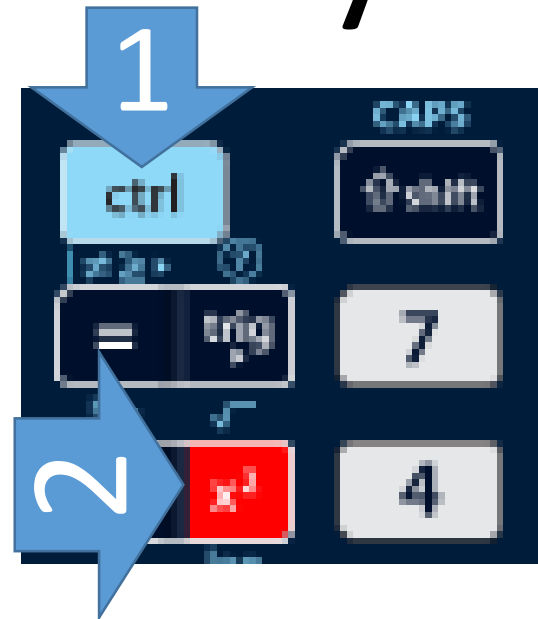
$$f1(x) = \sqrt{\boxed{X}}$$

$$y = \sqrt{x}$$

2 steps

(1) Ctrl

(2) squared



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x	f1(x):=
	$\sqrt{x}$
0.	0.
1.	1.
2.	1.41421
3.	1.73205
4.	2.

# Today's Objective

Unit 7

Lesson 5

Students will be able to graph a radical (square root) equation and use substitution with radicals.





Roots are the **opposite** of exponents.

**(1A of 4)**

Pick a number.



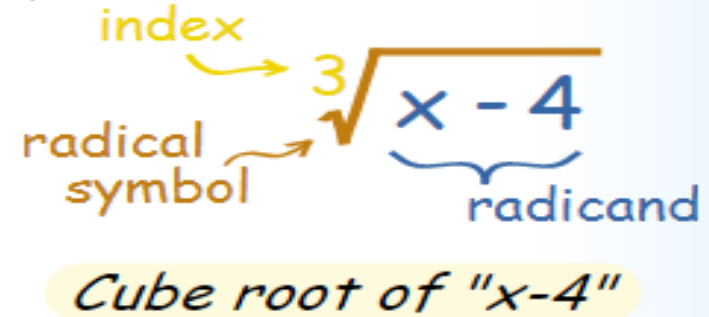
# Definition

A radical(root) is another way to remove an exponent.

# Facts

**(1B of 4)**

- Opposite of an exponent
- Fraction exponent
- exponent



# Radical/Root

## Example(s)

$\sqrt{x}$  is the same as

$$x^{\frac{1}{2}}$$

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## Non-Example(s)

$$x^2 \quad x \quad x^3$$

No root and  
no fraction exponent

$$\sqrt{9} = 3 \quad \sqrt{16} = 4$$

# Today's New Vocab (2 of 4)

Calculate these  
(square) roots.

$$\sqrt{9} = 3 \quad \sqrt{49} = 7$$

$$\sqrt{16} = 4 \quad \sqrt{100} = 10$$

$$\sqrt{25} = 5 \quad \sqrt{144} = 12$$

$$\sqrt{36} = 6$$

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# Perfect Squares

Columns

X	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

# Today's New Vocab (3 of 4)

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

F of x equals the square root of x.

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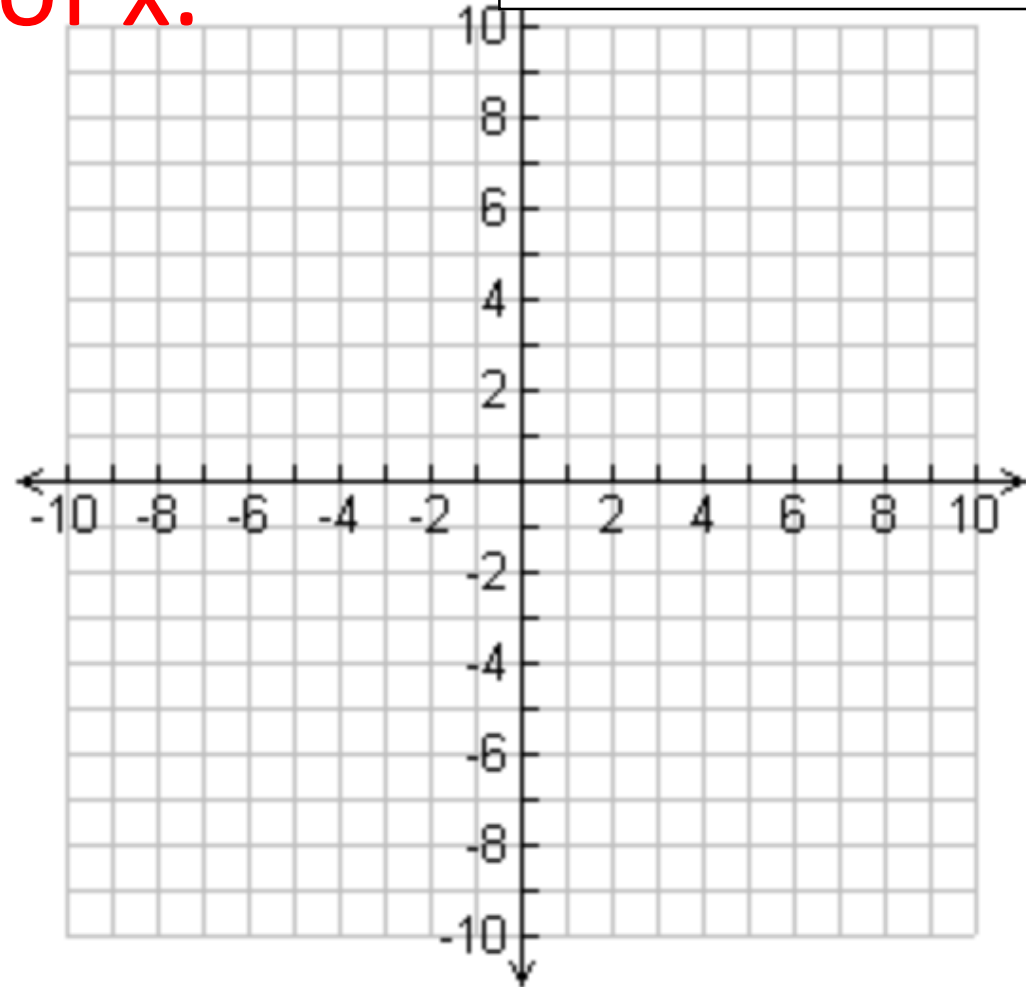
What is  $f(9)$ ?

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

$$f(9) = \sqrt{9}$$

$$f(9) = 3$$

x	f(x)
0	0
1	1
4	2
9	3

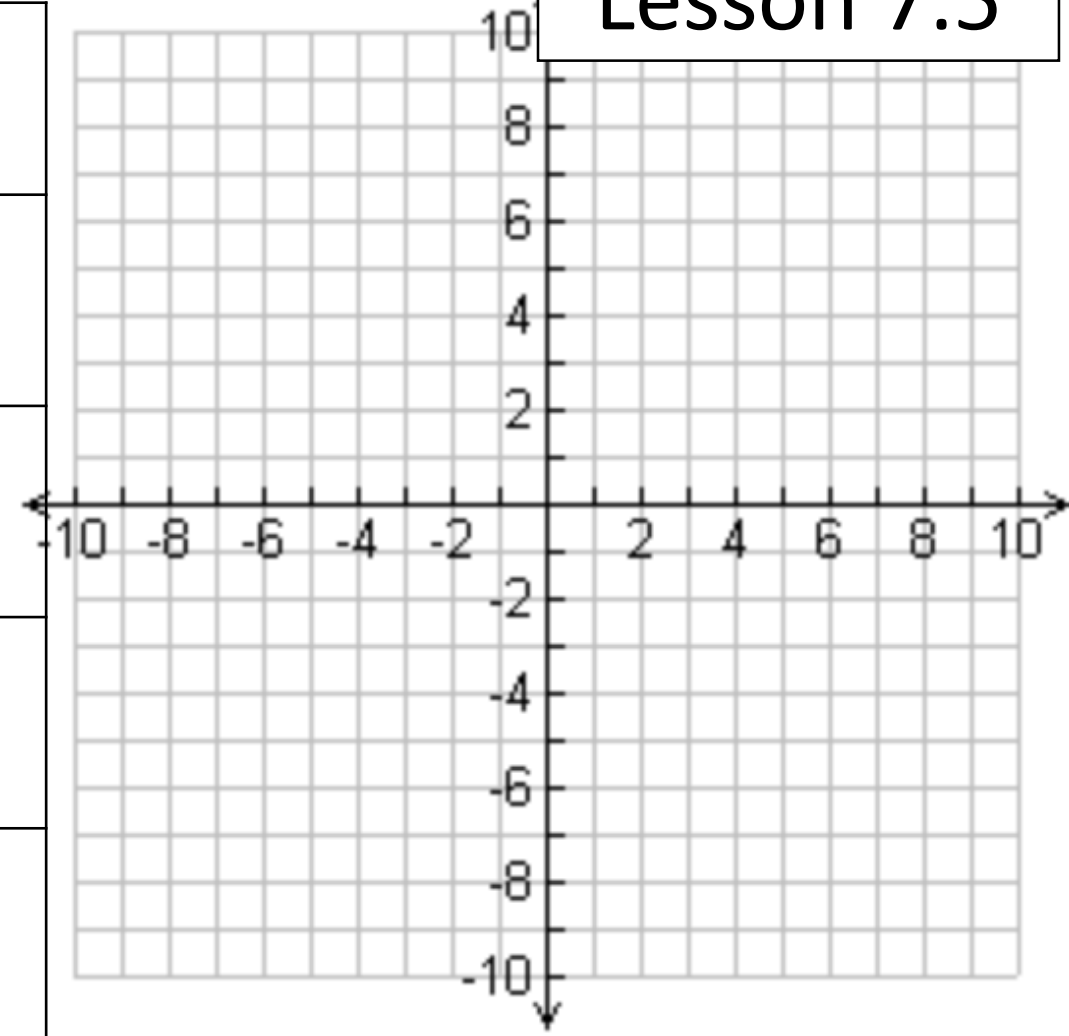


# Today's New Vocab (4 of 4)

Graph the function  $g(x) = \sqrt{x + 5}$

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$x$	$g(x)$
-5	0
-4	1
-1	2
4	3



How did the  
graph shift from  
 $f(x)$  to  $g(x)$ ?

5 units left



# Group Work Questions

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Directions: All groups, please do all of the questions. Use your notes to help you. [Ask 2 people before you ask me.]

Stop at 9:26 or 10:56 or 12:50 or 2:15

Do a few questions on the study guide if you finish early.

\*One person from each group will present one question.

# Work Period

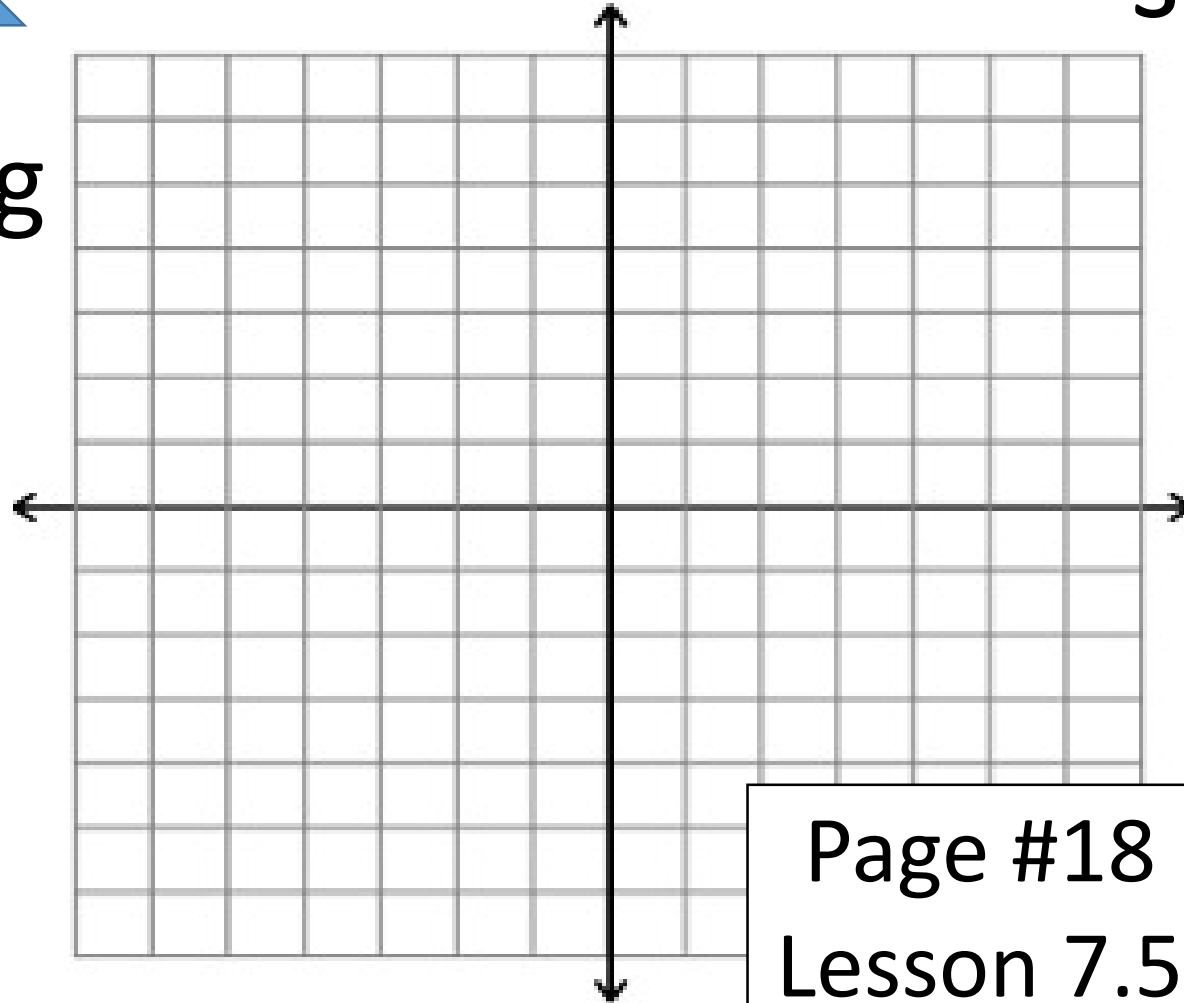
Graph  $H(x) = \sqrt{x + 2}$  over the domain  $-2 \leq x \leq 7$ .  
starts. ends.



Is there shading  
on the graph?

No, it is an  
equal sign.

Intervals have  
no ARROWS.



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x	H(x)
-2	0
-1	1
2	2
7	3

# Exit Ticket

Evaluate  $f(-2)$  and  $f(7)$  when  $f(x) = \sqrt{x + 2}$ .

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



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

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

$$f(7) = \sqrt{(7) + 2}$$

$$f(-2) = \sqrt{0}$$

$$f(7) = \sqrt{9}$$

$$f(-2) = 0$$

$$f(7) = 3$$

$(-2, 0)$  is the point  
on the line.

$x$	$f(x)$
-2	0
7	3

$(7, 3)$  is the point  
on the line.