

WARM UP

Solve for x.

1) $\sqrt{x+7} + 5 = x$

~~$(\sqrt{x+7})^2 = (x-5)^2$~~

$x+7 = x^2 - 10x + 25$

Write each expression in simplest form.

2) $(-27x^{15})^{\frac{-2}{3}}$

$\frac{1}{(-27x^{15})^{\frac{2}{3}}} = (-3x^5)^{-2} = \frac{1}{9x^{10}}$

$0 = x^2 - 11x + 18$

3) $(3x^{\frac{5}{2}})(-8x^{\frac{-7}{5}})$

$-24x^{-5/2} = \frac{-24}{x^{5/2}}$

$0 = (x-2)(x-9)$
 $x = 2, 9$

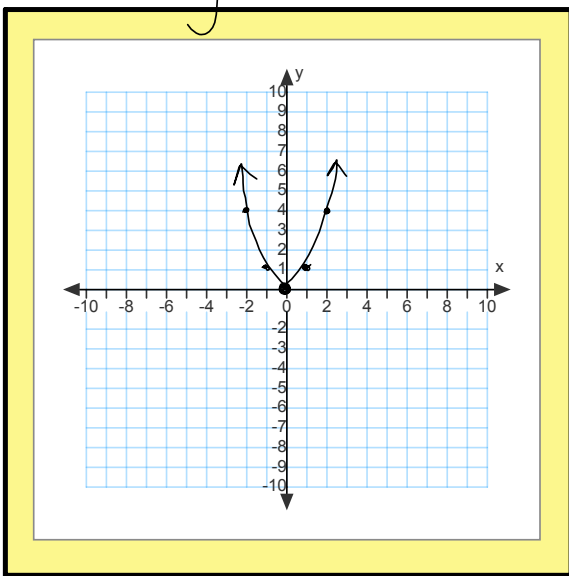
4) Complete the table of values for: $y = \sqrt{x}$

x	y
-4	und
0	0
1	1
9	3
16	4

7.8 Graphing Radical Equations

What graph can we compare

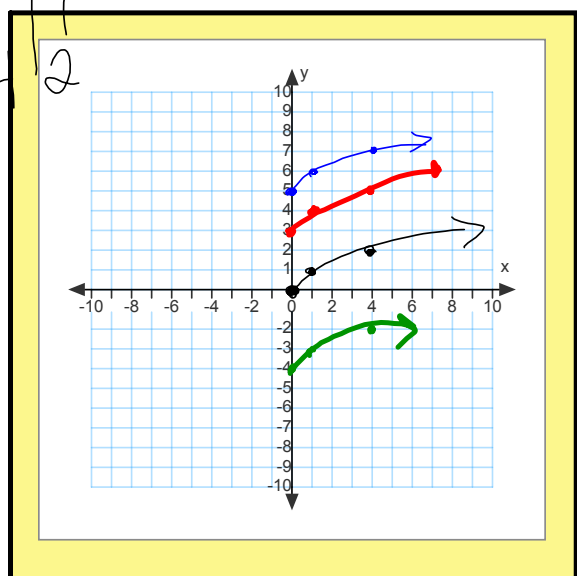
$y = \sqrt{x}$ to? $y = x^2$



What is your best guess for what this graph looks like?

x	y
0	0
4	2

$y = \sqrt{x}$



over 1 up 1

Over 1 up 3

$y = x^2 + 5$

over 1 up 1

over 3 up 1

$y = \sqrt{x + 5}$

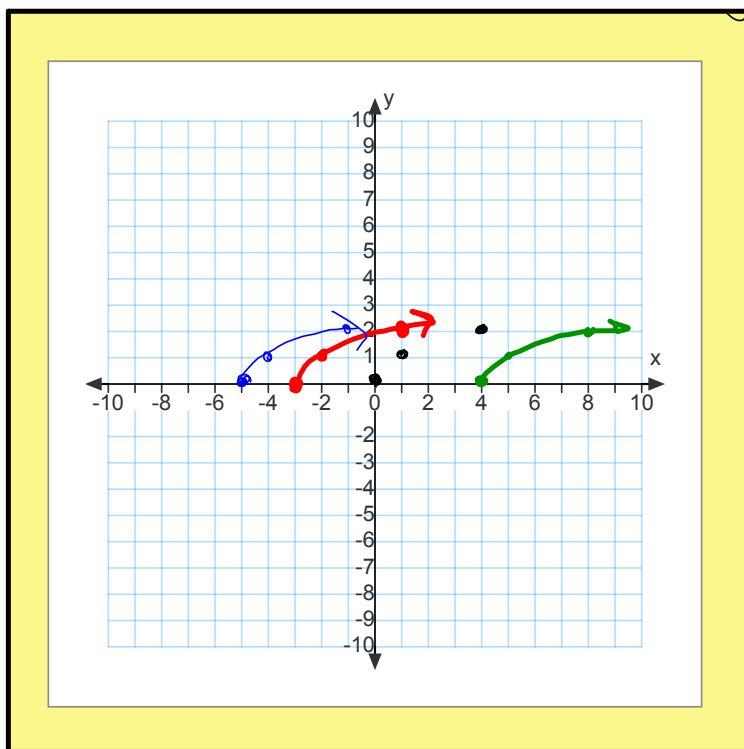
$y = \sqrt{x - 4}$

$y = \sqrt{x + 3}$

What was the transformation when we had the function:

$$y = (x+1)^2 \text{ or } y = (x-4)^2$$

left 1 Right 4



What is going to happen to these functions?

$$y = \sqrt{x}$$

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

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

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

Graphing Radical Equations

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

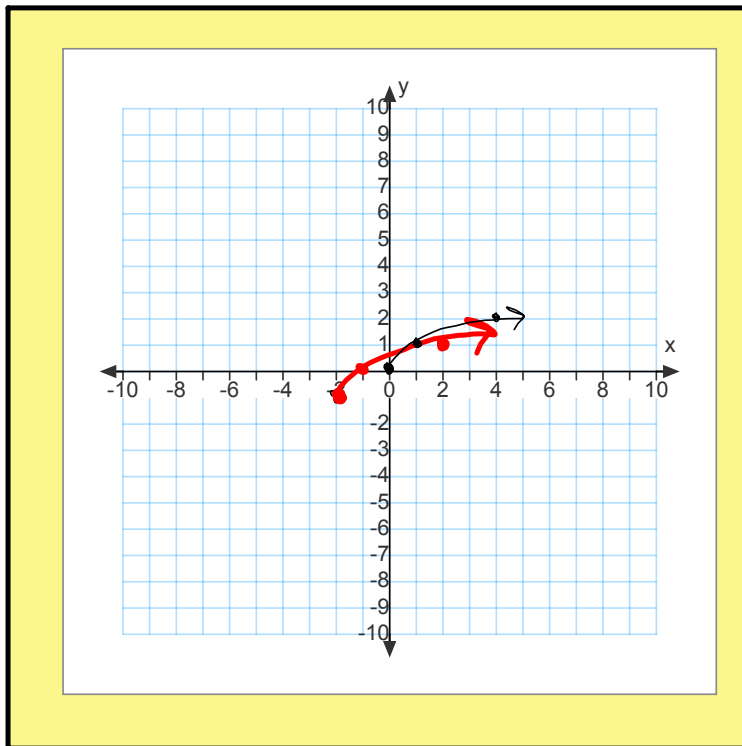
$$y = \sqrt{x} + a$$

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

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

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

Graph the function $y = \sqrt{x+2} - 1$

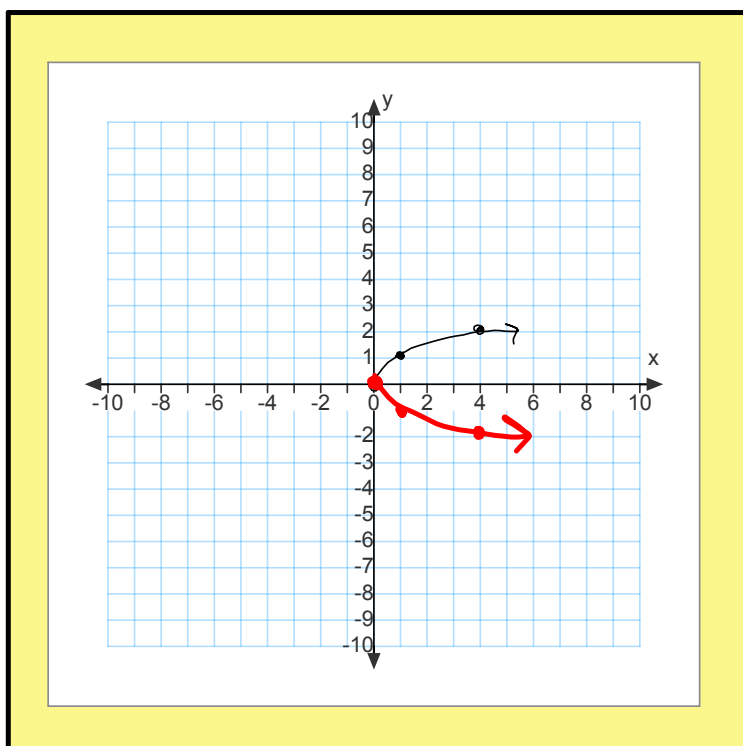


Transformations:

left + 2
down 1

What was the transformation when we had the function:

$$y = -x^2$$



What is going to happen to the function?

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

0 1 up | . - |
0 3 up | . - |

What does the negative in front of the square root do to the graph?

Summary

$$y = \sqrt{x}$$

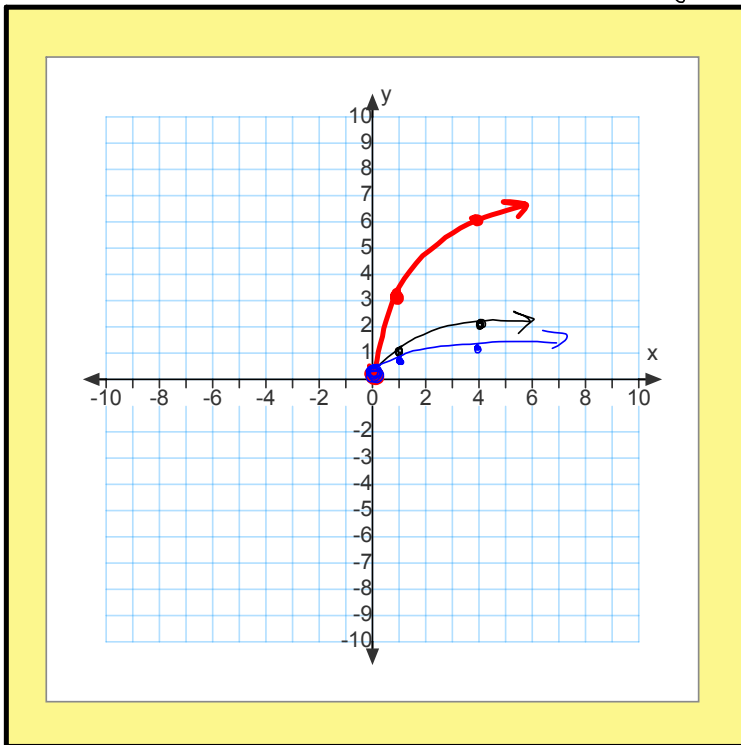
$$y = -\sqrt{x}$$

A negative in front of the square root _____

What was the transformation when we had the function:

$$y = 3x^2 \text{ or } y = \frac{1}{2}x^2$$

V. stretch V. shrink



What is going to happen to these functions?

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

Over 1 up 1.3

Over 3 up 1.3

$$y = \frac{1}{2}\sqrt{x}$$

Over 1 up 1.1/2

Over 3 up 1.1/2

Summary

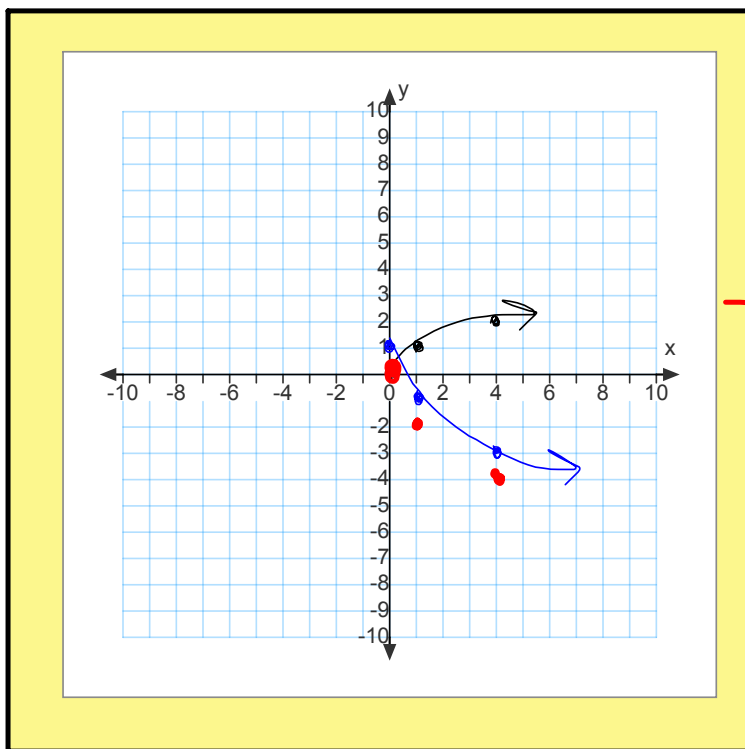
$$y = a\sqrt{x}$$

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

When $-1 \geq a \geq 1$ the transformation is _____

When $0 \leq a \leq 1$ the transformation is _____

Graph the function $y = -2\sqrt{x} + 1$



Transformations:

Reflection

→ V. Stretch
Up 1

01 up 1. -2

03 up 1. -2

Now try graphing
on your calculator:

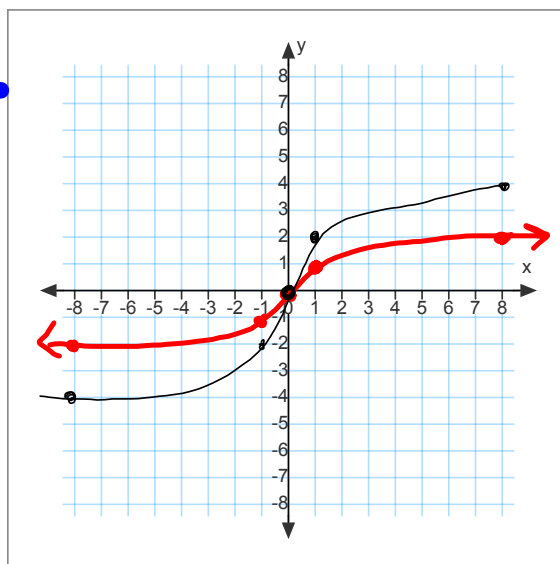
$$y = x^3$$

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

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

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

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



HOMework

7.8

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Please bring your textbook tomorrow.
Make sure it is covered!