

Quick ✓ *****NEED GRAPH PAPER

★ What does it mean to be an inverse?

★ How do I find an inverse?

★ What is the horizontal line test?

★ $f(x)=2x+3$ $g(x)=x-2$

a. $f(x)+g(x)$

$$2x+3 + x-2$$

$$3x+1$$

b. $f(g(x))$

$$2(x-2) + 3$$

$$2x-4 + 3$$

c. $f(x) \cdot g(x)$

$$(2x+3)(x-2)$$

$$2x^2 - 4x + 3x - 6$$

$$2x^2 - 1x - 6$$

d. $f^{-1}(x)$

$$f(x) = 2x + 3$$

$$y = 2x + 3$$

$$x = \frac{y-3}{2}$$

$$\frac{x-3}{2} = \frac{y}{2}$$

$$y = \frac{x-3}{2}$$

DLT's

Extra Credit Day 5

1)

Each side of a certain cube is a square with an area of 64 square inches. What is the volume of the cube, in cubic inches?

- F. 2^{64}
- G. 2^{18}
- H. 2^{12}
- J. 2^9
- K. 2^3

2)

Warm Up

DLT- 6.3 Function Operations and
Compositions

Homework Questions

Review

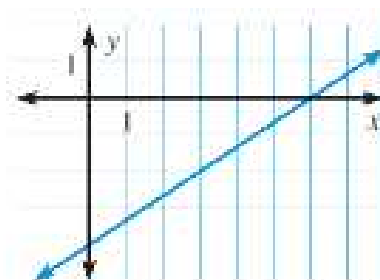
21. ★ **MULTIPLE CHOICE** What is the inverse of the function whose graph is shown?

Ⓐ $g(x) = \frac{3}{2}x - 6$

Ⓑ $g(x) = \frac{3}{2}x + 6$

Ⓒ $g(x) = \frac{2}{3}x - 6$

Ⓓ $g(x) = \frac{3}{2}x + 12$



Extra Credit Day 6

For all positive x , y , and z , $\frac{2x^{-3}y^4z^5}{3^{-1}y^{-2}z^{-3}} = ?$

A. $\frac{2y^2z^2}{3x^3}$

B. $\frac{2x^3y^4}{3y^2z^3}$

C. $\frac{3y^2z^3}{2x^3}$

D. $\frac{6y^6z^8}{x^3}$

E. $\frac{6y^4z^2}{x^3}$





6.5 Graph Square Root and Cube Root Functions

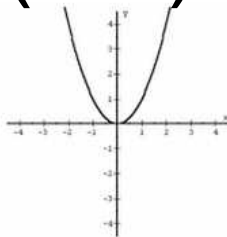
- How do we graph rational functions?
- Transformations?
- How do I graph square root and cube root functions?

What is a parent function?

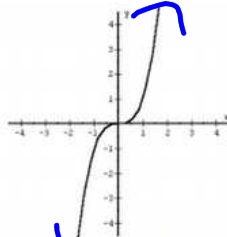
$$y = x$$

$$y = x^2$$

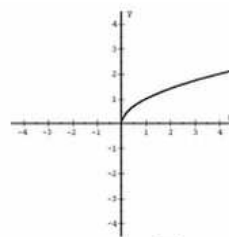
$$y = a(x-h)^2 + k$$



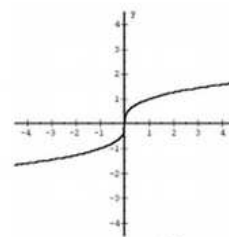
$f(x) = x^2$
Quadratic



$f(x) = x^3$
Cubic



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



$f(x) = \sqrt[3]{x}$
Cube Root

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

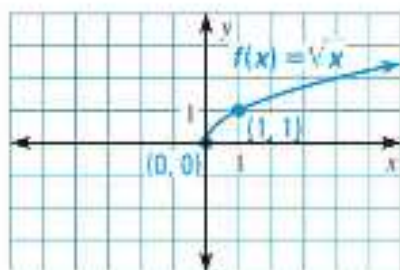
What is a radical function?

KEY CONCEPT

For Your Notebook

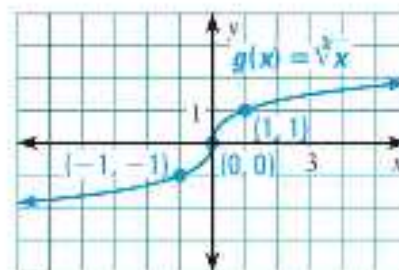
Parent Functions for Square Root and Cube Root Functions

The parent function for the family of square root functions is $f(x) = \sqrt{x}$.



Domain: $x \geq 0$, Range: $y \geq 0$

The parent function for the family of cube root functions is $g(x) = \sqrt[3]{x}$.

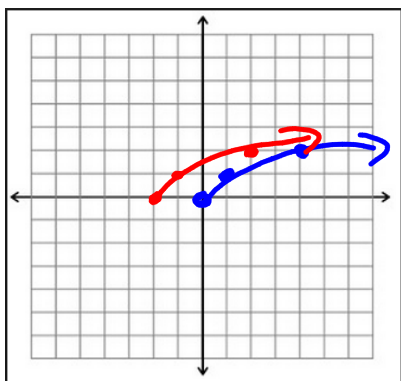


Domain and range: all real numbers

$$y = a\sqrt{x-h} + k$$

$$y = a\sqrt[3]{x-h} + k$$

Graph $y = \sqrt{x}$. State the domain and range.



X	Y
0	0
1	1
4	2

D: $(0, \infty)$

$(-2, \infty)$

R: $(0, \infty)$

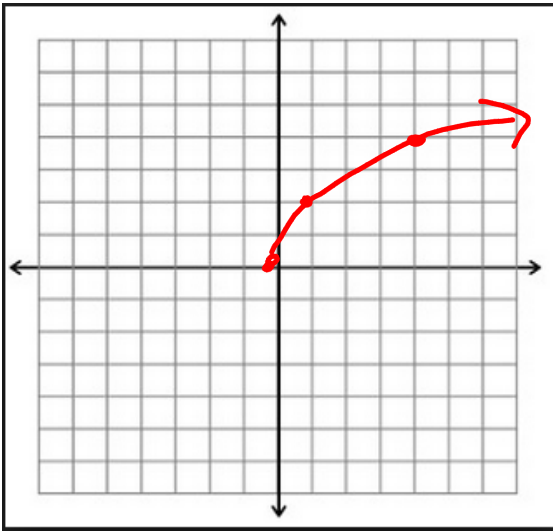
$(0, \infty)$

$y = \sqrt{x+2}$

left + 2

X	Y
-2	0
-1	1
2	2

Graph $y=2\sqrt{x}$. Compare the graph with the graph of $y=\sqrt{x}$.



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

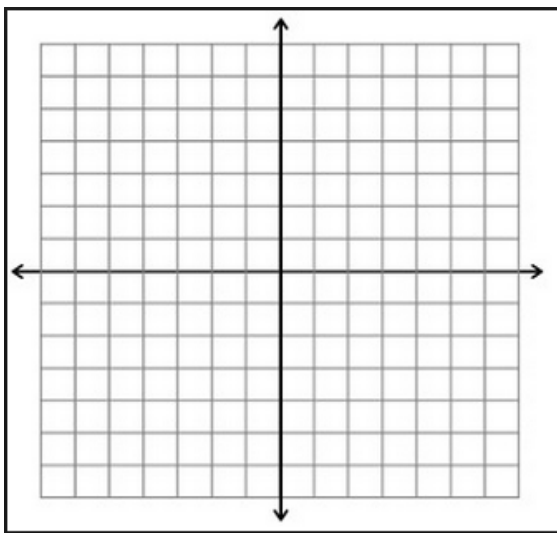
D:

R:

D:

R:

Graph $y = -\sqrt[3]{x}$.



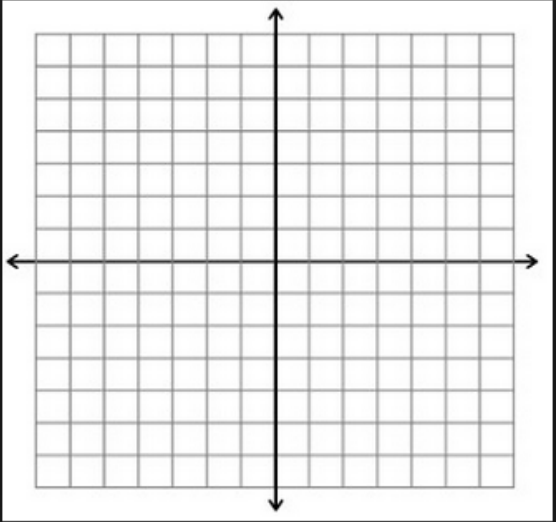
D:

R:

D:

R:

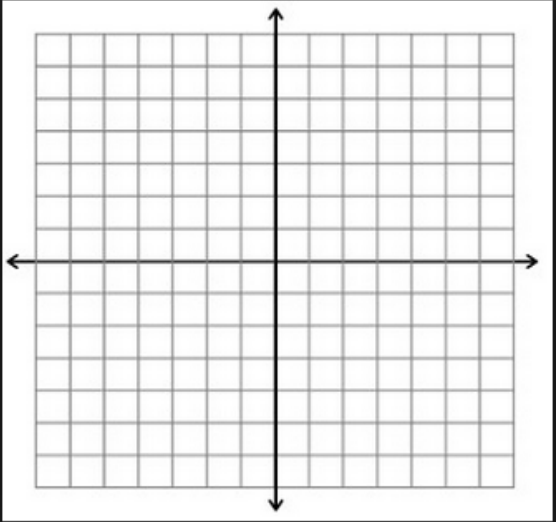
TOYO Graph $y = -3\sqrt{x}$.



D:
R:

D:
R:

TOYO Graph $y=4\sqrt[3]{x}$.



D:
R:

D:
R:

Idiot Test

Which bus leaves in the morning?

11:59 AM

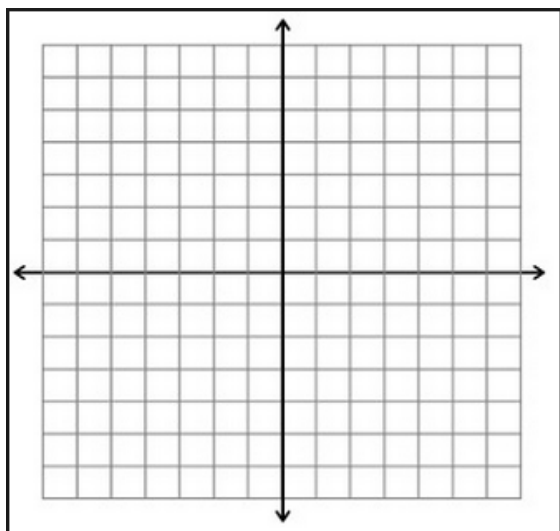
Bus Schedule
Bus 1: After buses 2&3
Bus 2: After bus 3
Bus 3: Now! Run!
Bus 4: Before bus 2, after bus 1

KEY CONCEPT*For Your Notebook***Graphs of Radical Functions**

To graph $y = a\sqrt{x-h} + k$ or $y = a\sqrt[3]{x-h} + k$, follow these steps:

STEP 1 Sketch the graph of $y = a\sqrt{x}$ or $y = a\sqrt[3]{x}$.

STEP 2 Translate the graph horizontally h units and vertically k units.



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

D:

R:

KEY CONCEPT

For Your Notebook

Graphs of Radical Functions

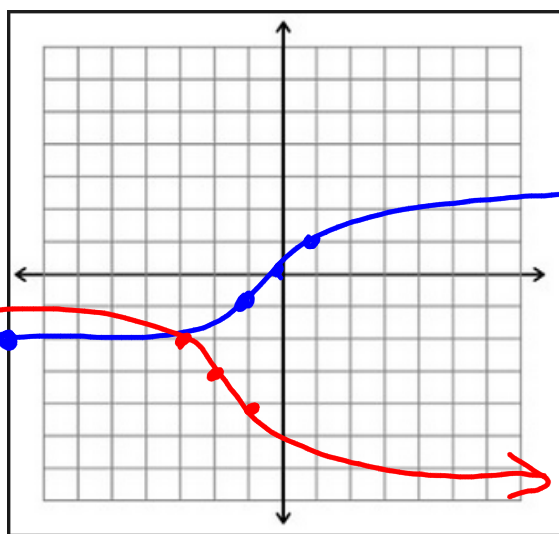
To graph $y = a\sqrt{x-h} + k$ or $y = a\sqrt[3]{x-h} + k$, follow these steps:

STEP 1 Sketch the graph of $y = a\sqrt{x}$ or $y = a\sqrt[3]{x}$.

STEP 2 Translate the graph horizontally h units and vertically k units.

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

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



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

X	Y
-8	$\sqrt[3]{-8} = -2$
-1	$\sqrt[3]{-1} = -1$
0	0
1	$\sqrt[3]{1} = 1$
8	$\sqrt[3]{8} = 2$

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

X	Y
-10	$-\sqrt[3]{-10+2} - 3 = -1$
-3	$-\sqrt[3]{-3+2} - 3 = -2$
-2	$-\sqrt[3]{-2+2} - 3 = -3$
-1	$-\sqrt[3]{-1+2} - 3 = -4$

D:

R:

Write the function whose graph is:

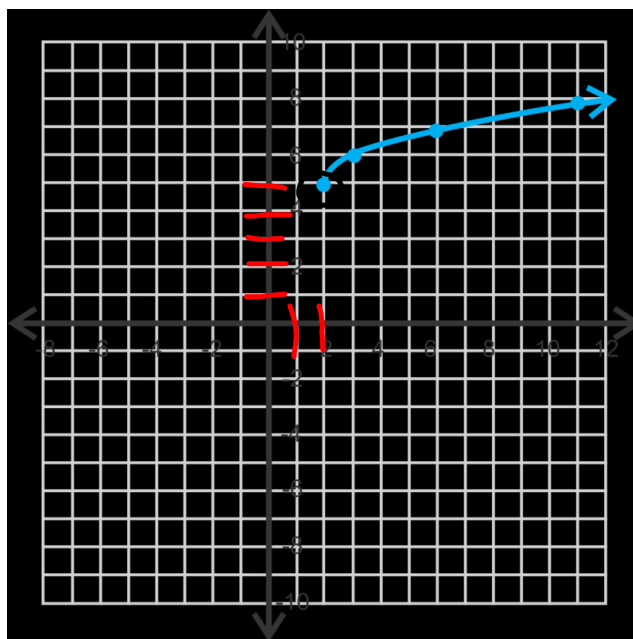
$$y = a\sqrt{x-h} + k$$

$(\underline{2}, \underline{5})$

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

$$D: (2, \infty)$$

$$R: (5, \infty)$$



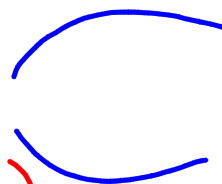
Find the domain and range of the function without graphing.

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

D: $(-5, \infty)$

R: $(0, \infty)$

$(-5, 0)$



$-\sqrt{x+5}$

D: $(-5, \infty)$

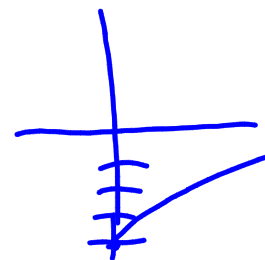
R: $(-\infty, 0)$

b) $y = (1/3)\sqrt{x} - 4$

D: $(0, \infty)$

R: $(-4, \infty)$

$(0, -4)$



c) $y = (1/2)\sqrt[3]{x+7}$



Homework

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