

Taking a Closer Look!

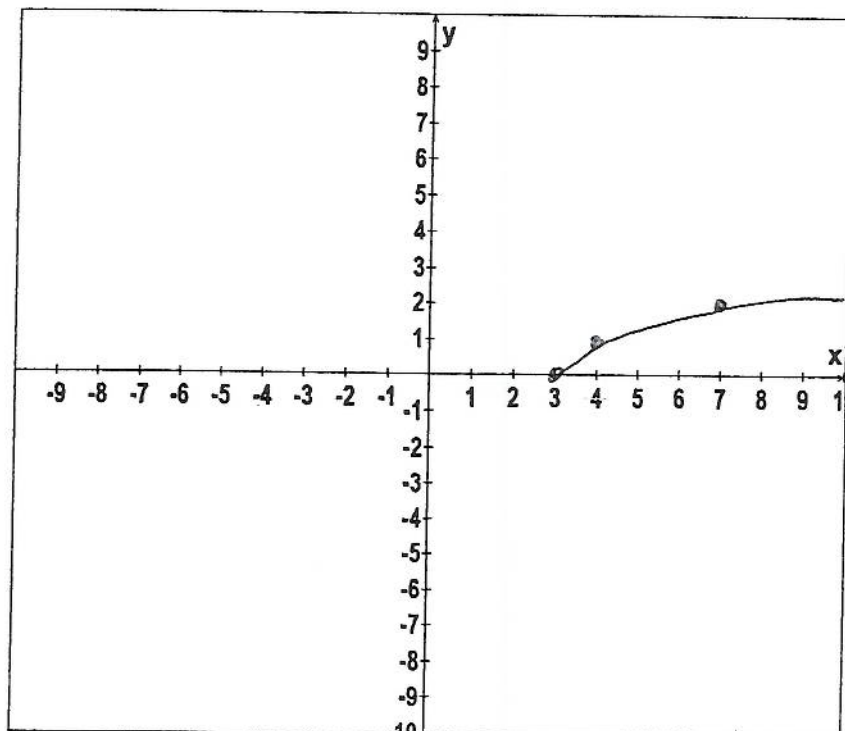
Name _____

Directions: Give answers about the graph in interval notation when possible.



Graph:

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



1. Is it a function? *yes*

If yes, is it a one-to-one function?

yes

~~If a function, is it onto?~~

2. Domain: $(3, \infty)$

3. Range: $[0, \infty)$

4. x-intercept(s): $(3, 0)$

5. y-intercept(s): *none*

6. Where is the graph increasing? $(3, \infty)$

7. Where is the graph decreasing? *none*

8. Where is $y < 0$? *none*

9. Where is $y > 0$? $(3, \infty)$

10. Where is $y = 0$?

x = 3

11. Find y when $x = 7$.

y = 2

12. For what x-value(s) is $y = 4$?

x = 19

13. Asymptotes: (state equation(s))

none

14. Is the inverse of this graph a function?

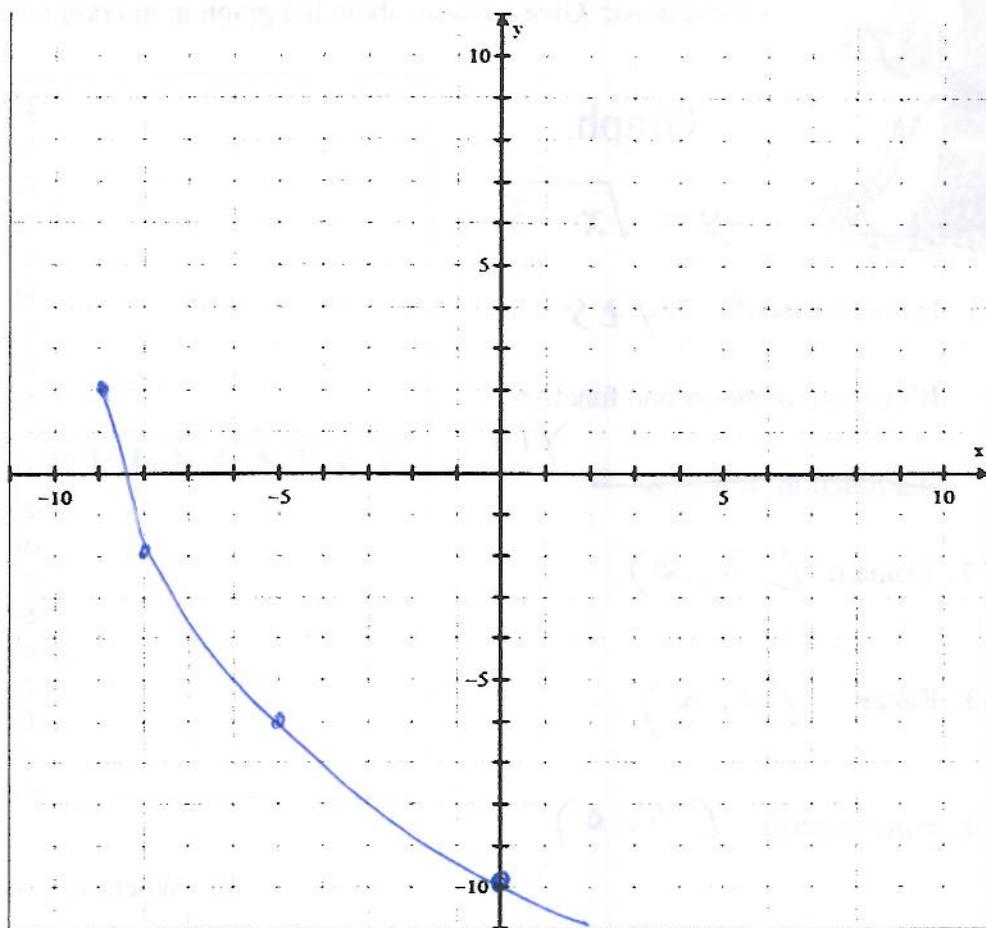
yes

15. Name given to this graph:

square root

$$f(x) = 2 - 4\sqrt{x+9}$$

x	f(x)
-9	2
-8	-2
-5	-6
0	-10
7	-14



Domain: $[-9, \infty)$ Range: $(-\infty, 2]$

What is the parent function? $f(x) = \sqrt{x}$

Transformations of the parent function: Left 9, up 2, horiz flip, vertical stretch by a factor of 4.

Point of Symmetry: none

Endpoint: $(-9, 2)$

Increasing Interval: none

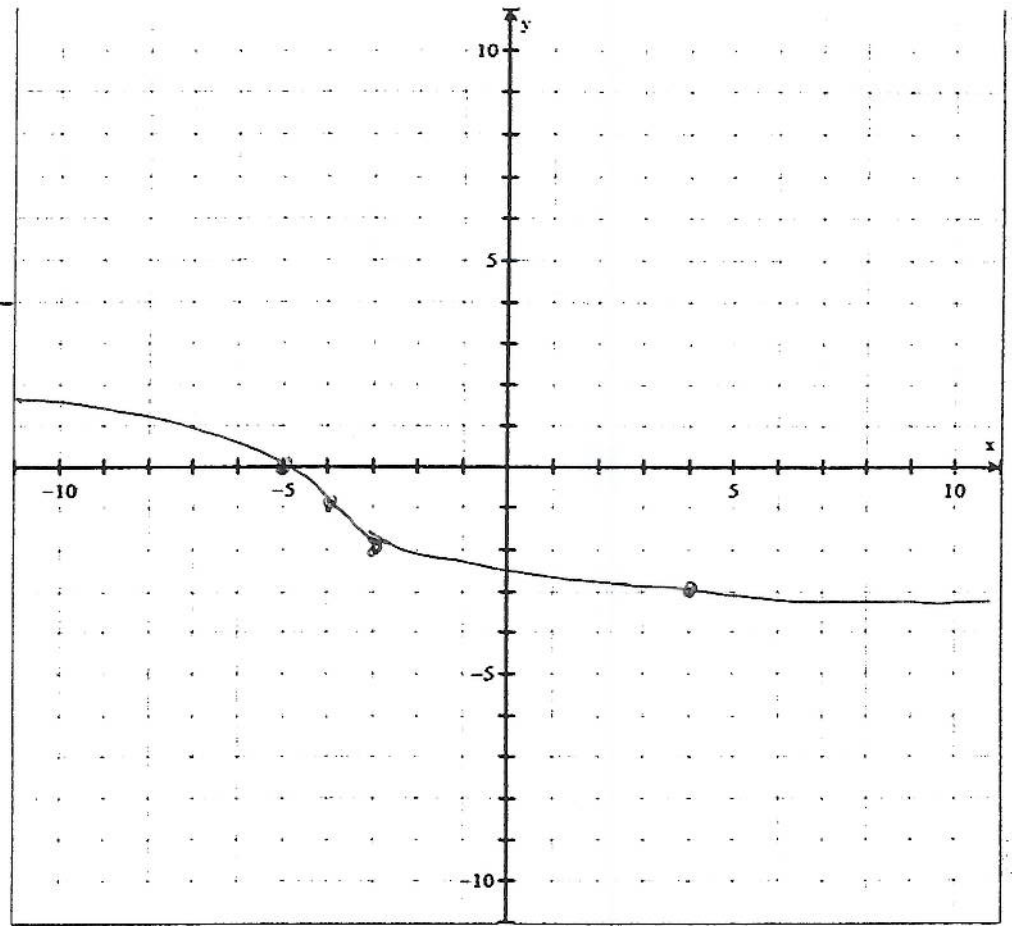
Decreasing interval: $(-9, \infty)$



I want to remember

$$f(x) = -\sqrt[3]{x+4} - 1$$

x	f(x)
-12	1
-5	0
-4	-1
-3	-2
4	-3



Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$

What is the parent function? $f(x) = \sqrt[3]{x}$

Transformations of the parent function: Left 4, down 1, horiz. flip.

Point of Symmetry: $(-4, -1)$

Endpoint: None

Increasing Interval: None

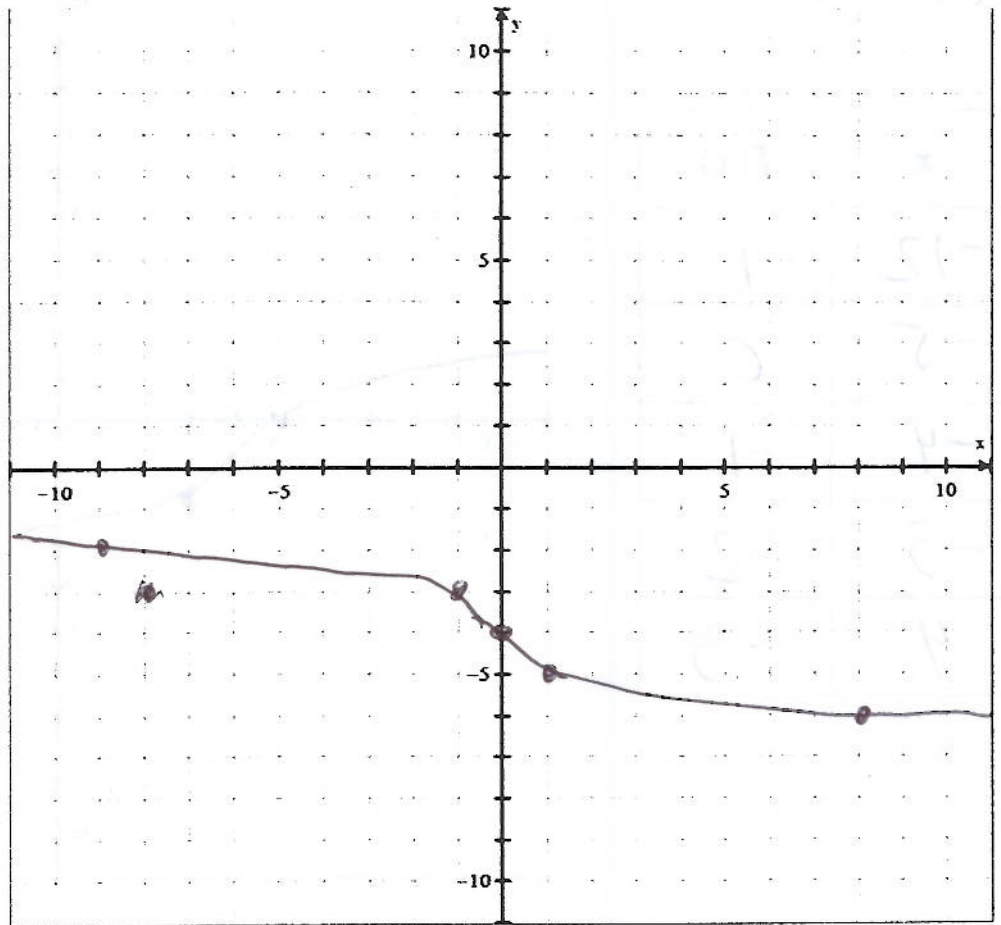
Decreasing Interval: $(-\infty, \infty)$



I want to remember

$$f(x) = -4 - \sqrt[3]{x}$$

x	$f(x)$
-8	-2
-1	-3
0	-4
1	-5
8	-6



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

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

What is the parent function? $f(x) = \sqrt[3]{x}$

Transformations of the parent function: Down 4, reflection over x-axis

Point of Symmetry: $(0, -4)$

Endpoint: none

Increasing Interval: none

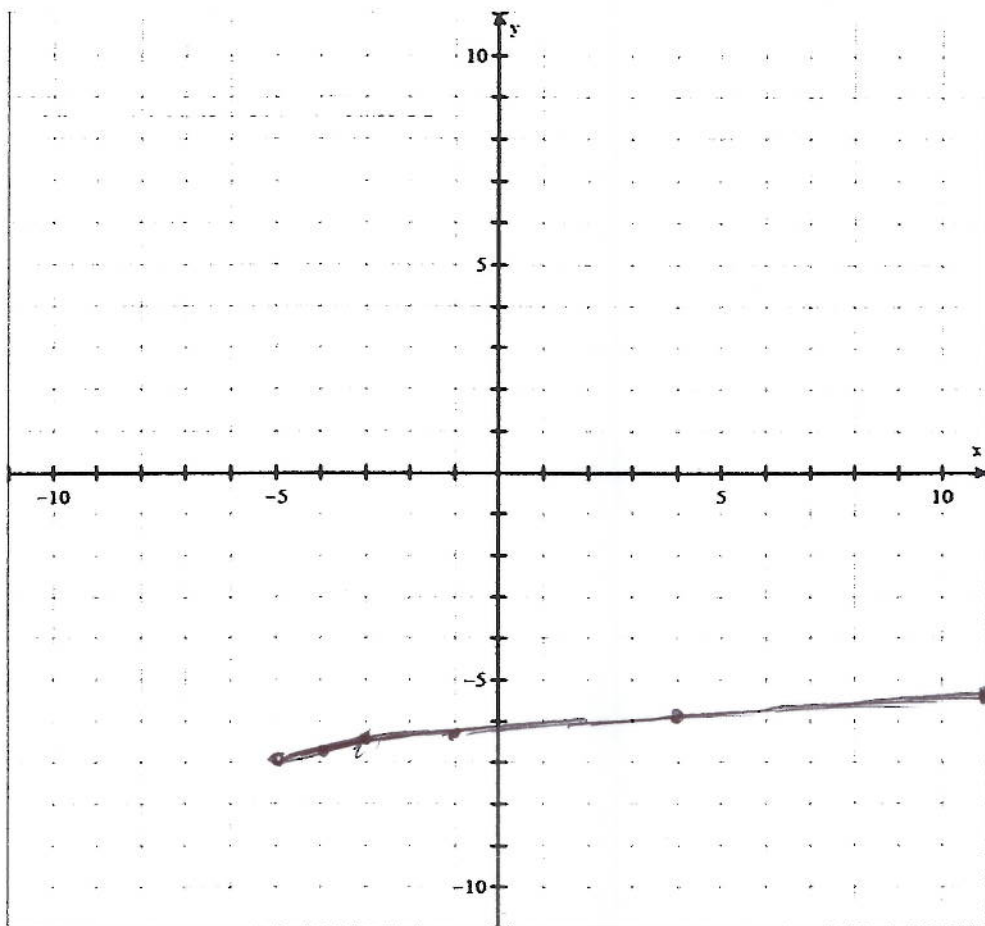
Decreasing Interval: $(-\infty, \infty)$



I want to remember

$$f(x) = \frac{1}{3}\sqrt{x+5} - 7$$

x	f(x)
-5	-7
-4	$-6\frac{2}{3}$
-1	$-6\frac{1}{3}$
4	-6
11	$-5\frac{2}{3}$



Domain: $[-5, \infty)$

Range: $[-7, \infty)$

What is the parent function? $f(x) = \sqrt{x}$

Transformations of the parent function: left 5, down 7, vertical
stretch by a factor of 1/3

Point of Symmetry: none

Endpoint: $(-5, -7)$

Increasing Interval: $(-5, \infty)$

Decreasing Interval: none



I want to remember