Warm Up

Identify parent and transformations:

1) $f(x) = -x^3 + 6$

Type: Cubic

Transformations:

Ref, Up 6

2) $f(x) = \sqrt{x - 3} + 8$

Type: Sq. Root

Transformations:

Right 3, Up 8

3) $f(x) = |x + 7| - 2$

Type: Abs. Value

Transformations:

Left 7

Down 2

4) $f(x) = -(x + 5)^2$

Type: Quadratic

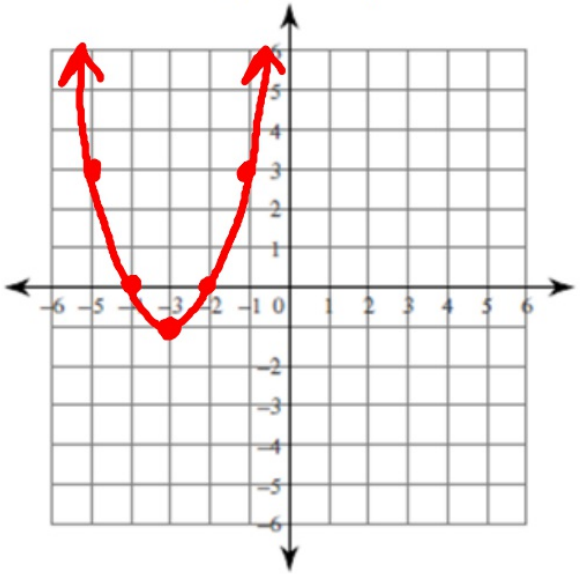
Transformations:

Ref.

Left 5

Identify the parent function, the transformations and graph each equation:

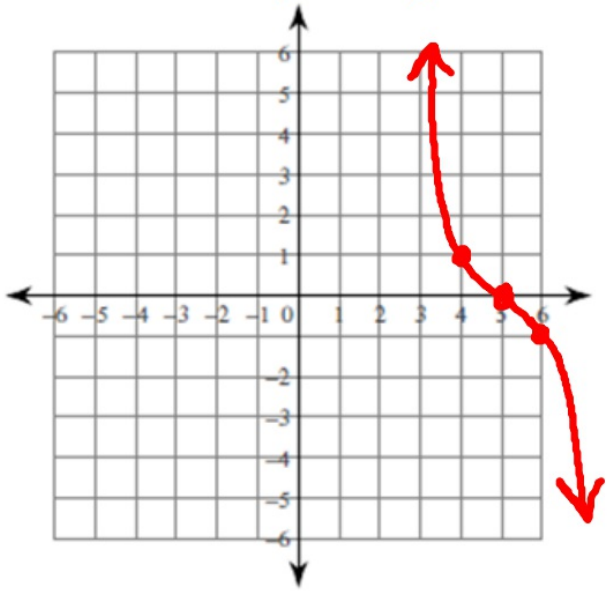
1) $f(x) = (x + 3)^2 - 1$



Parent Type: Quadratic

Trans.: Left 3 & Down 1

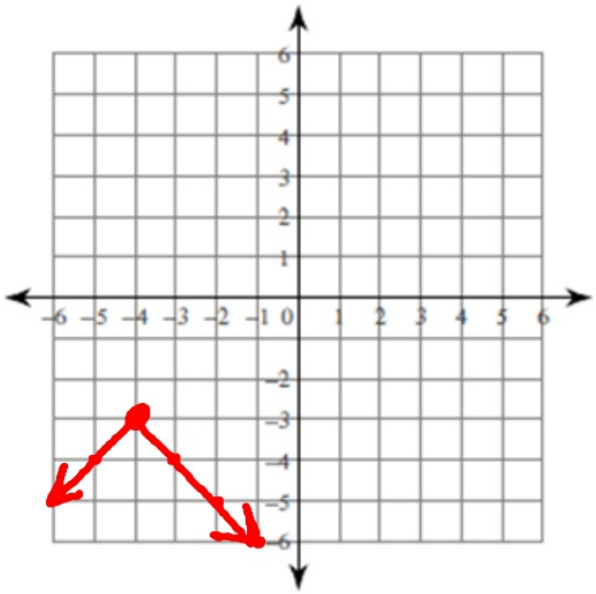
2) $f(x) = -(x - 5)^3$



Parent Type: Cubic

Trans.: Reflection & Right 5

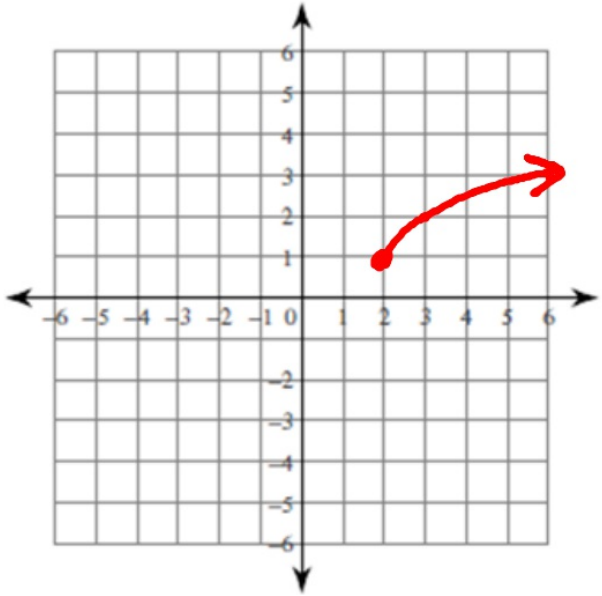
3) $f(x) = -|x+4| - 3$



Parent Type: **Absolute Value**

Trans.: **Reflection, Left 4 & Down 3**

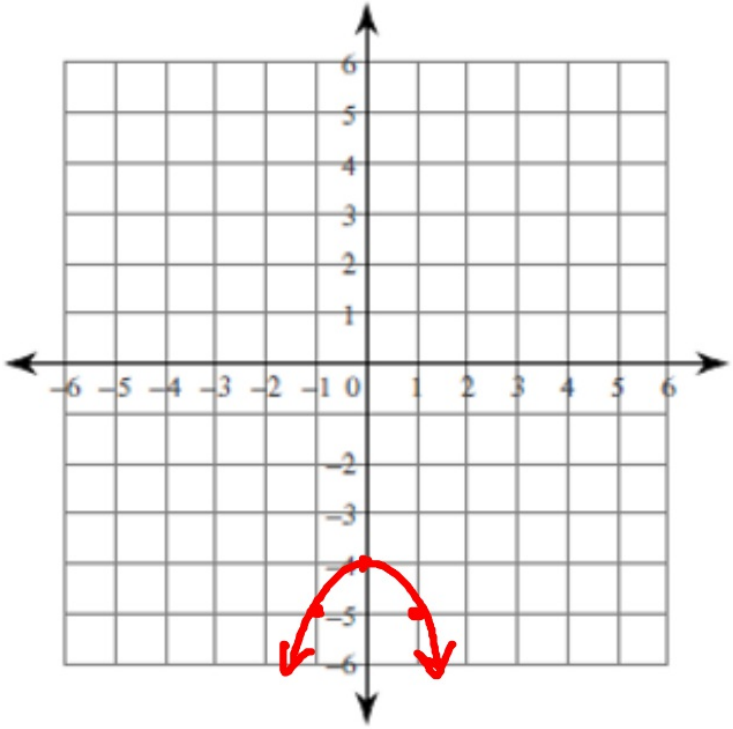
4) $f(x) = \sqrt{x-2} + 1$



Parent Type: **Square Root**

Trans.: **Right 2 & Up 1**

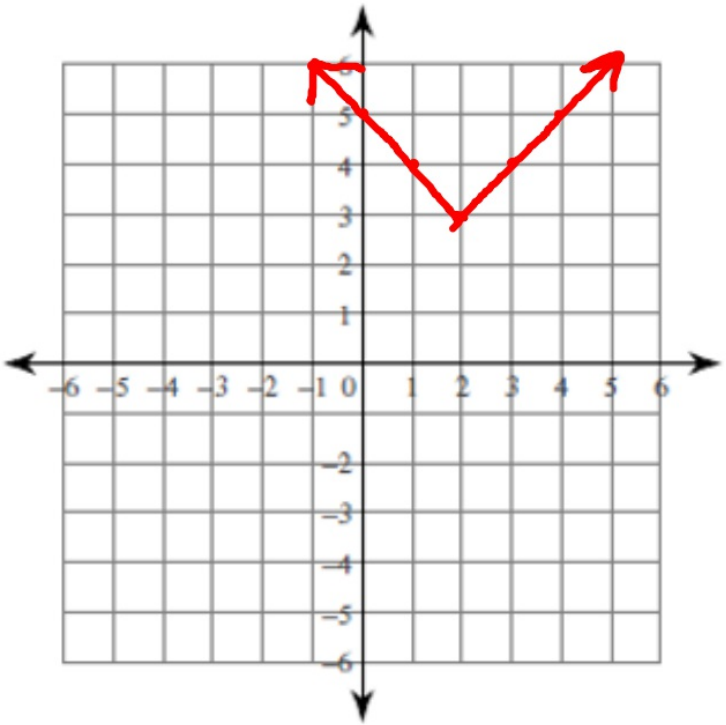
5) $f(x) = -x^2 - 4$



Parent Type: Quadratic

Trans.: Reflection & Down 4

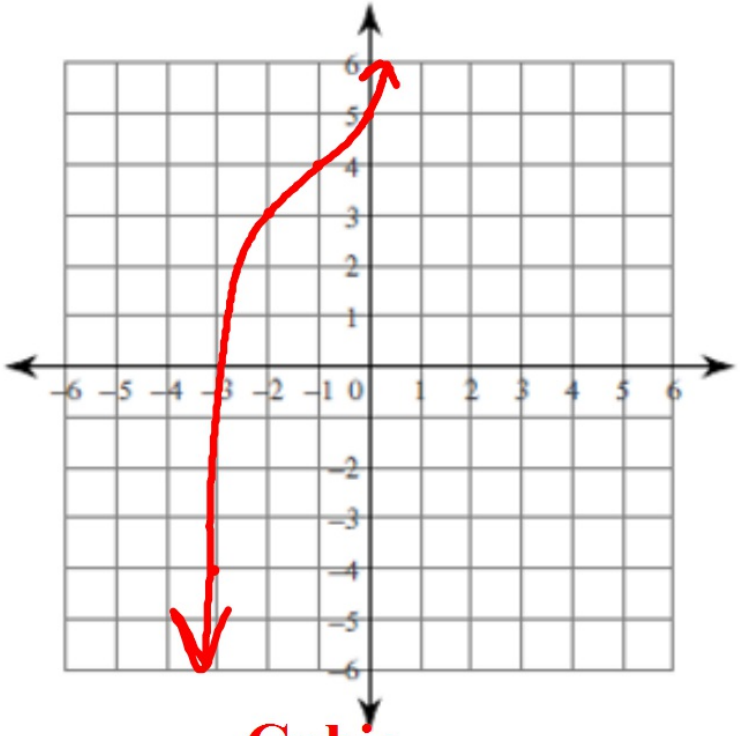
6) $f(x) = |x - 2| + 3$



Parent Type: Absolute Value

Trans.: Right 2 & Up 3

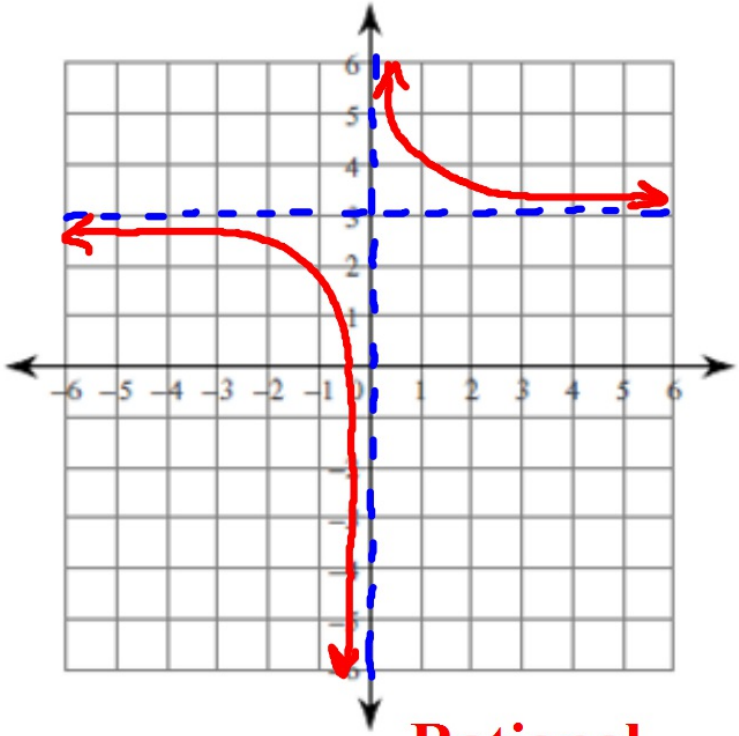
7) $f(x) = (x+1)^3 + 4$



Parent Type: **Cubic**

Trans.: **Left 1 & Up 4**

8) $f(x) = \frac{1}{x} + 3$



Parent Type: **Rational**

Trans.: **Up 3**

Unit 6:
Functions Part I

Parent Functions

Type
Transformations

What is the *positive interval* of the domain for...

Where is it above the x axis?

Answers with x values

What is the *increasing interval* of the domain for...

from Left to Right

Where is the slope positive?

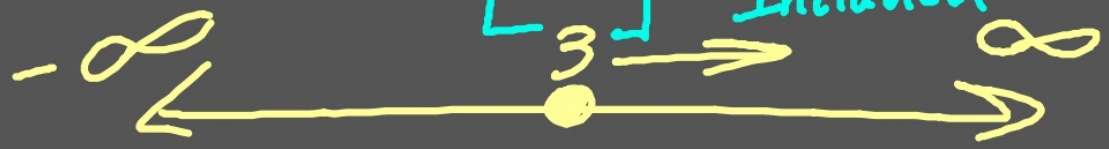
More x values

But first Interval Notation...

Start, Stop

( ) Not Included

[ ] Included

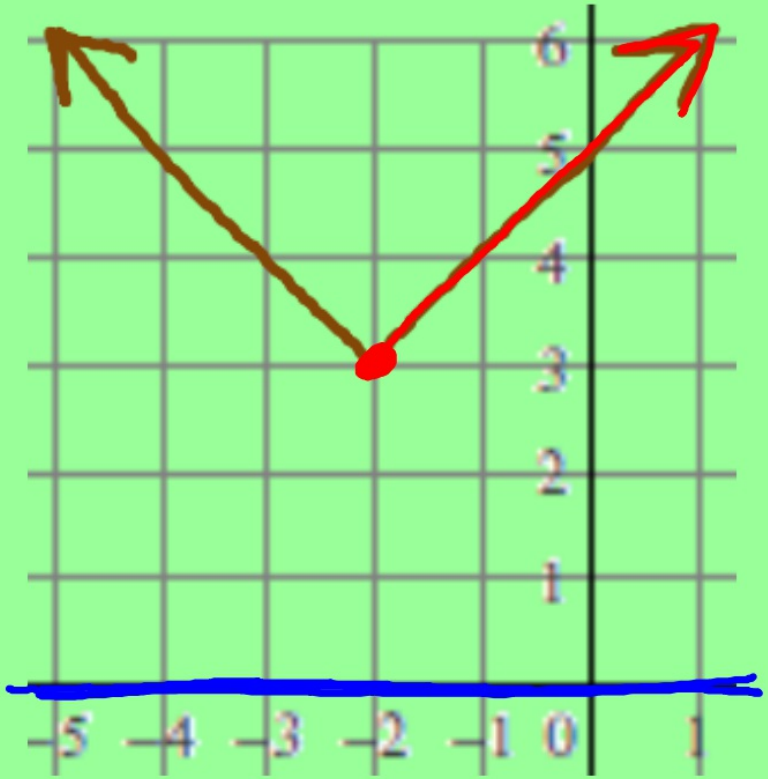


$\mathbb{R} \rightarrow (-\infty, \infty)$

$x \geq 3 \rightarrow [3, \infty)$

$x \leq 3 \rightarrow (-\infty, 3]$

$-5 < x \leq 7 \rightarrow (-5, 7]$



What is the positive interval?

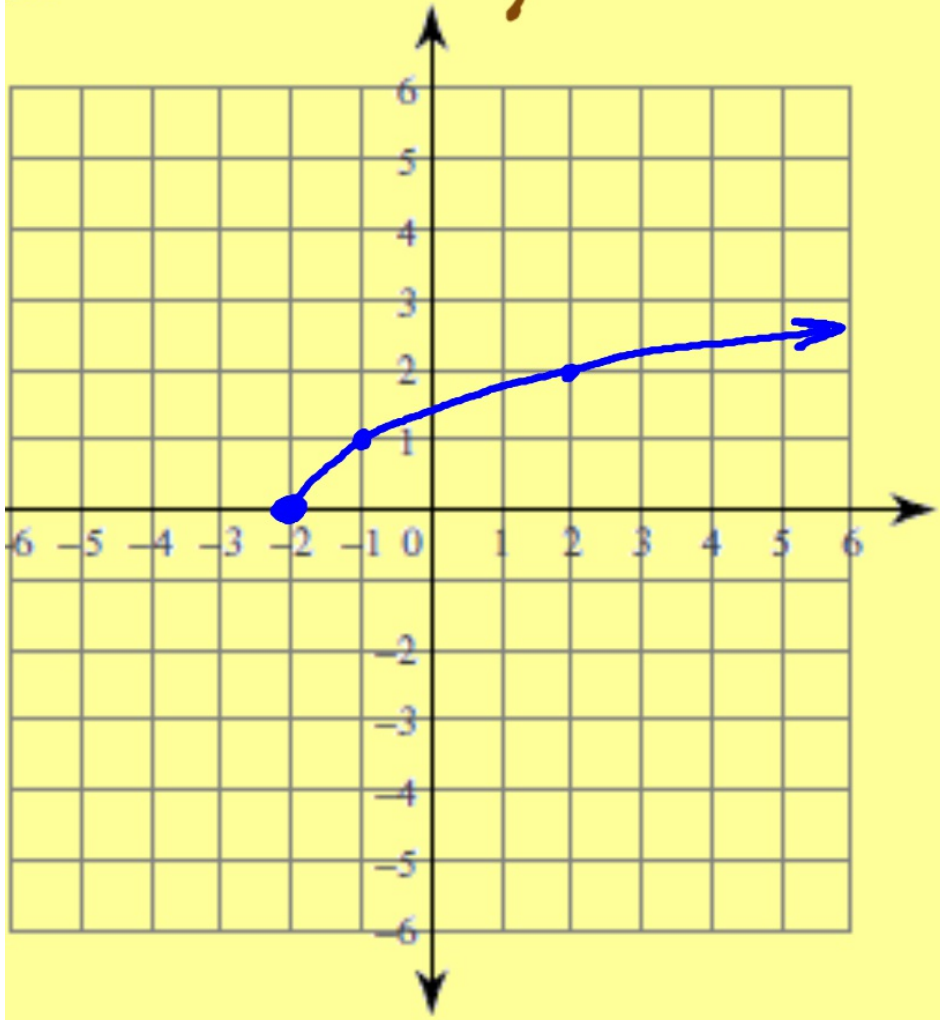
$\mathbb{R}$ or $(-\infty, \infty)$

What is the increasing interval?

$[-2, \infty)$

502 Notes

$y = \sqrt{x+2}$

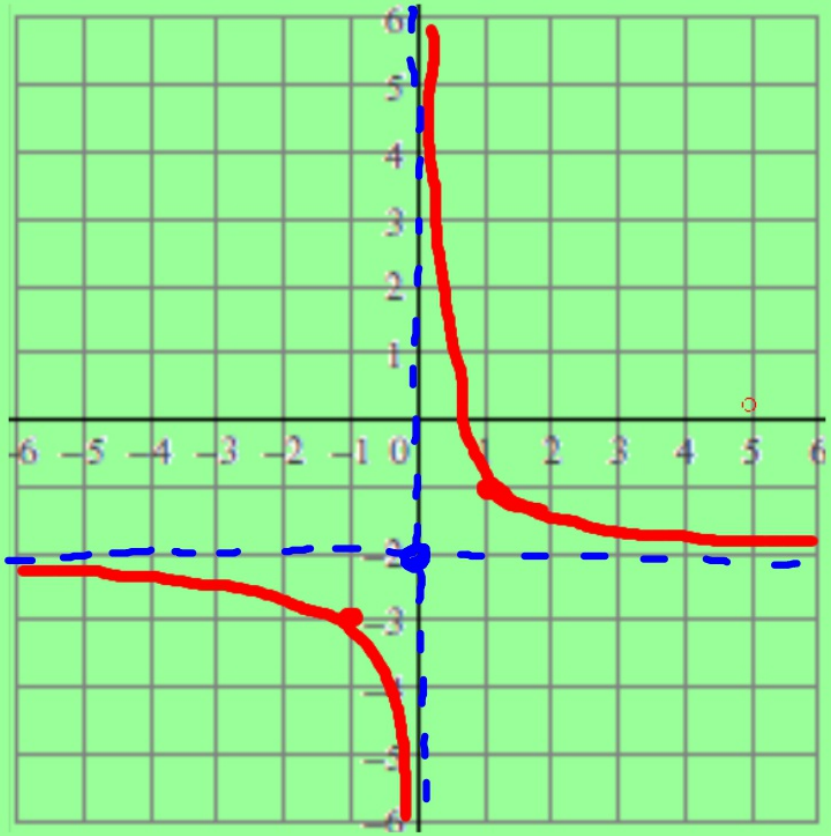


Positive Interval

$(-2, \infty)$

Increasing Interval

$[-2, \infty)$



Transformations

Down 2

Type Rational

Equation

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

Domain

$$x \neq 0$$

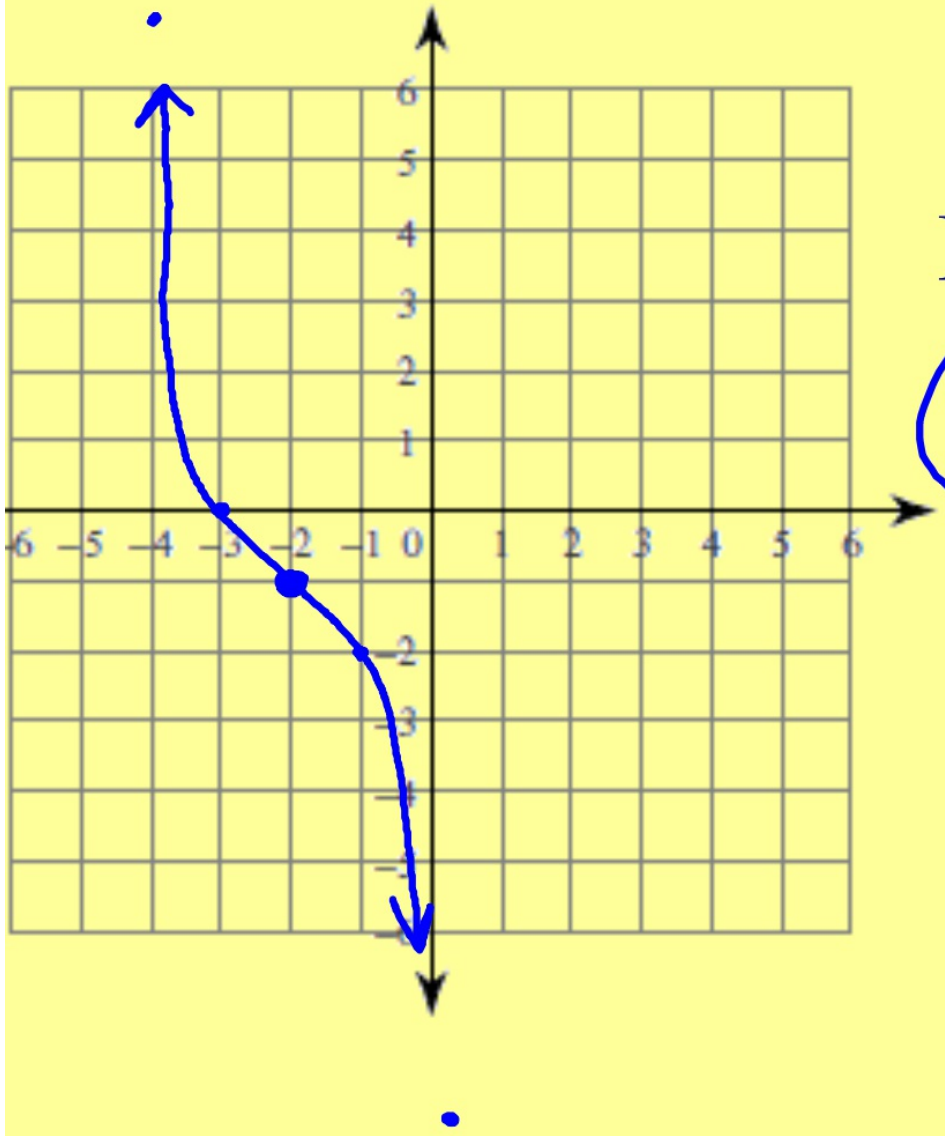
Range

$$y \neq -2$$

~~**Increasing Interval**~~

~~**Positive Interval**~~

$y = -(x+2)^3 - 1$

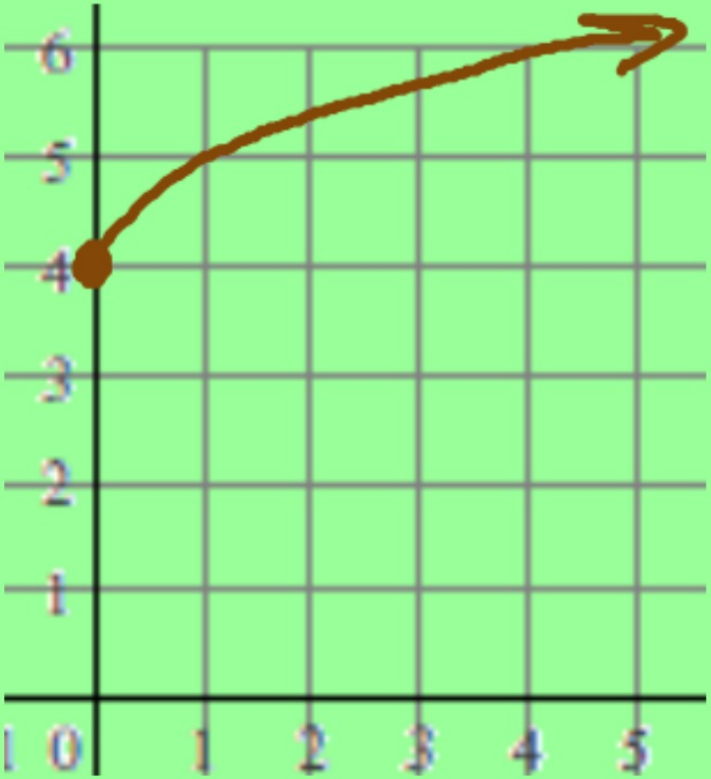


Positive Interval

$(-\infty, -3)$

Increasing Interval

$\emptyset$



Type Sq. Root

Equation

$y = \sqrt{x} + 4$

Domain

$x \geq 0$

Range

$y \geq 4$

Transformations

Up 4

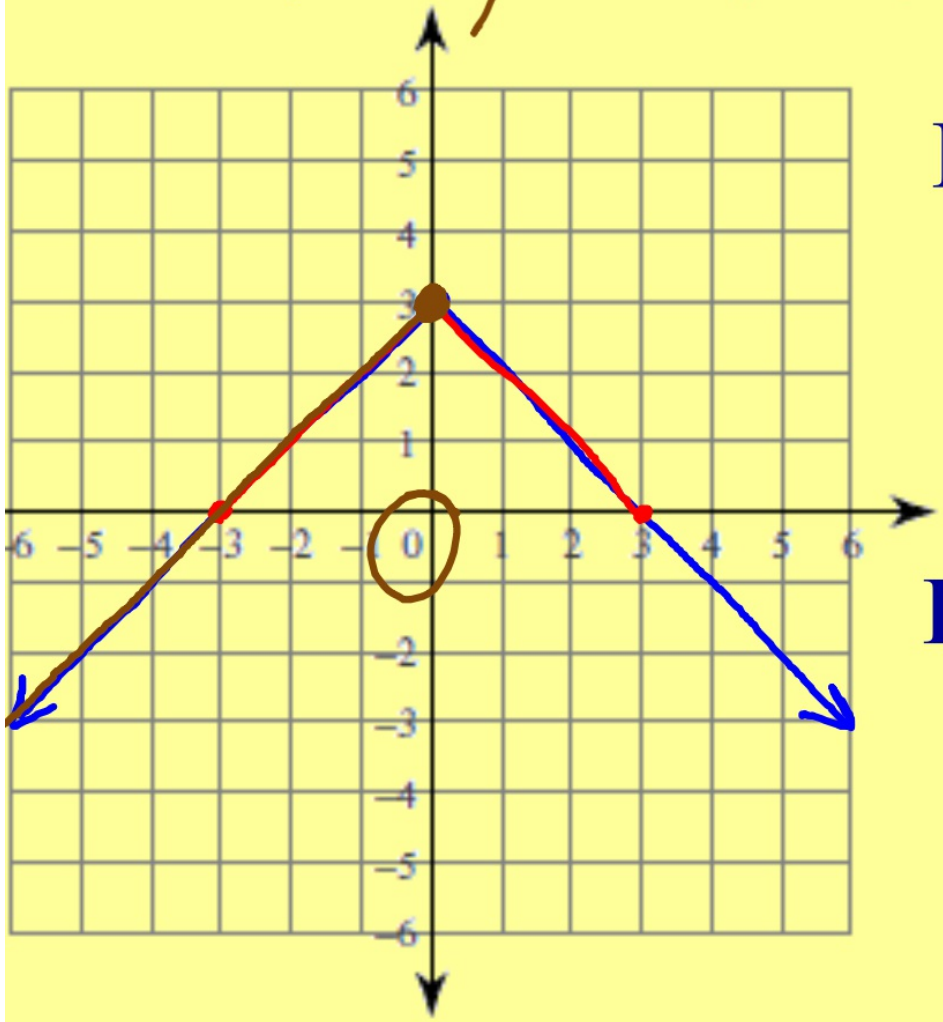
Positive Interval

$[0, \infty)$

Increasing Interval

$[0, \infty)$

5.) $y = -|x| + 3$

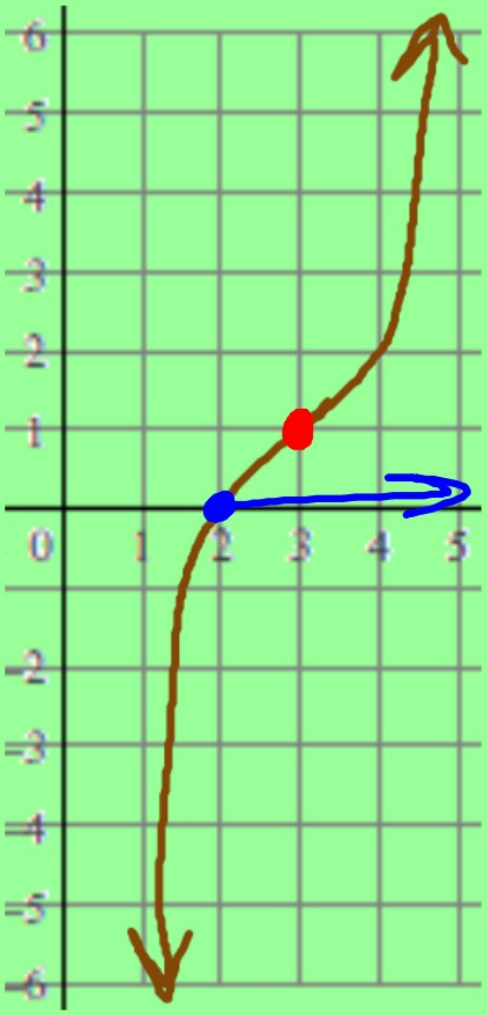


Positive Interval

$(-3, 3)$

Increasing Interval

$(-\infty, 0]$



Transformations

Right 3

Up 1

Equation $y = (x-3)^3 + 1$

Domain $\mathbb{R}$

Range $\mathbb{R}$

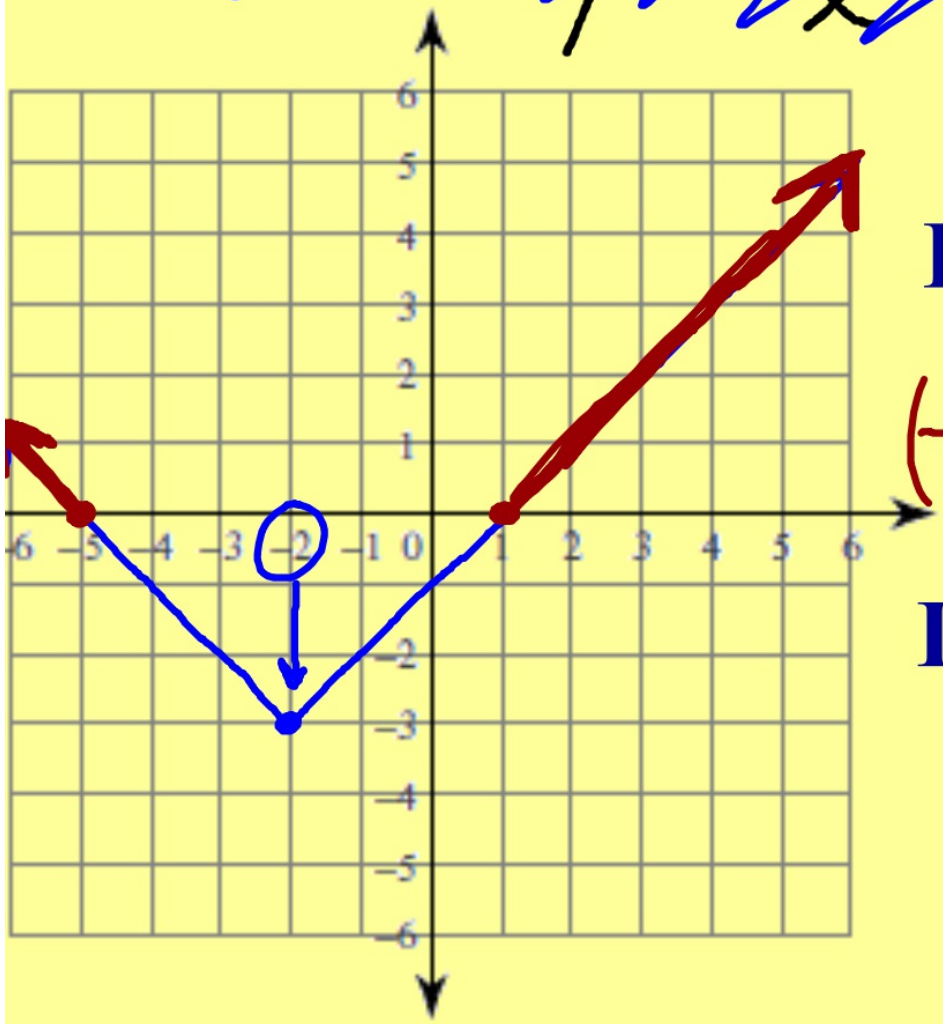
Positive Interval $(2, \infty)$

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

Type

Cubic

7.)

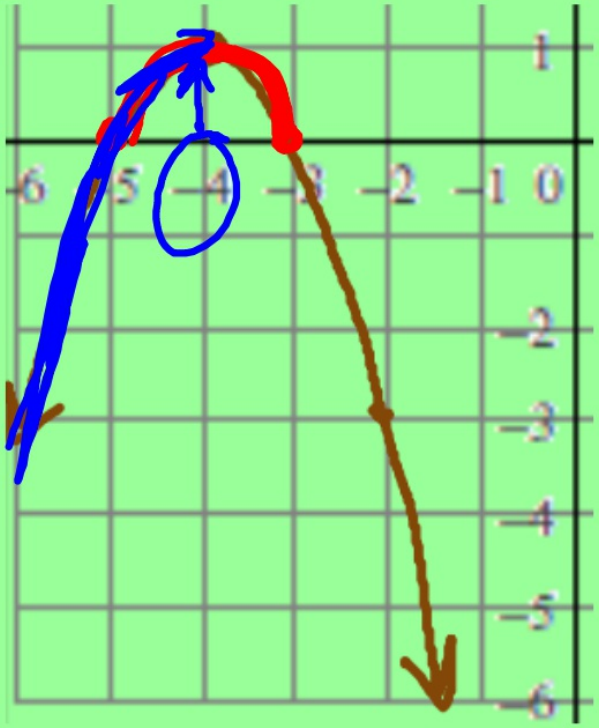


Positive Interval

$(-\infty, -5) \cup (1, \infty)$

Increasing Interval

$[-2, \infty)$



Type Quadratic

Equation

$y = -(x+4)^2 + 1$

Domain $\mathbb{R}$

Range $y \leq 1$

Positive Interval

$(-5, -3)$

Increasing Interval

$(-\infty, -4)$

Transformations

Left 4

Up 1

Ref.

WB 502; #1-6

E.C. for All