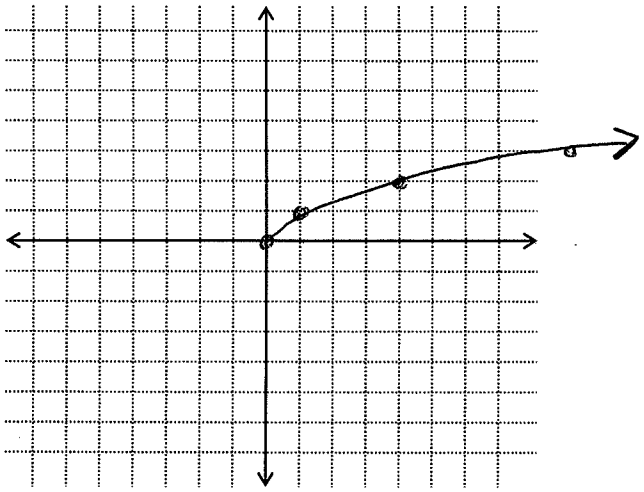
Graphing Square Root and Cube Root Functions

parent function

Complete the table below for $f(x) = \sqrt{x}$ and graph the function.

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



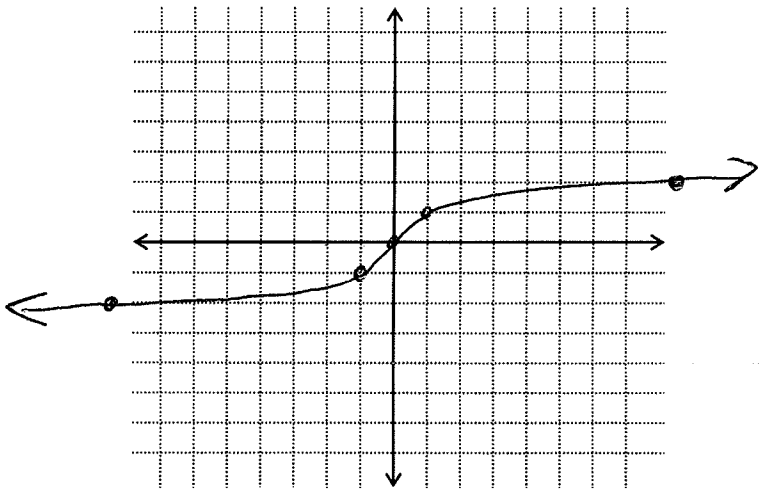
D: $[0, \infty)$ ← cannot take the square root of a negative

R: $[0, \infty)$

parent function

Complete the table below for $f(x) = \sqrt[3]{x}$ and graph the function.

x	f(x)
-8	-2
-1	-1
0	0
1	1
8	2



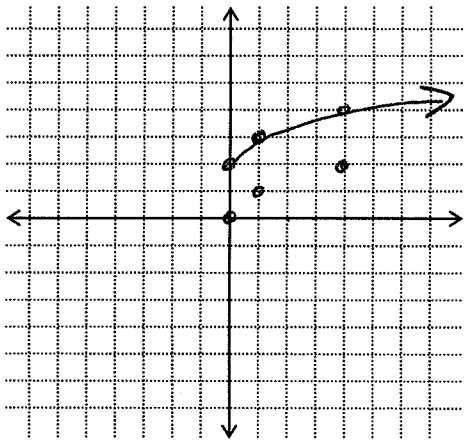
D: $(-\infty, \infty)$

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

① graph parent function ② use transformations to move parent function

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

Transformations: up 2

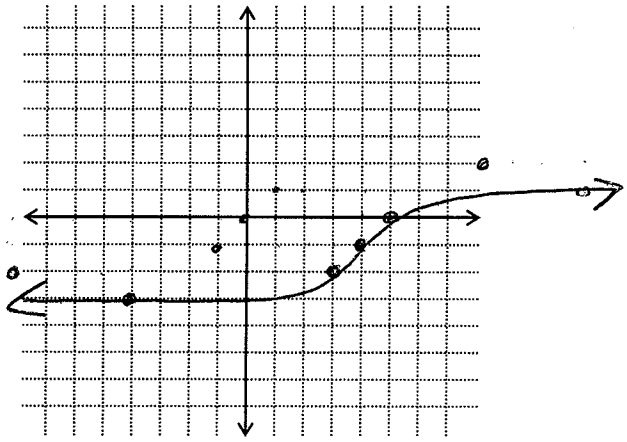


x-intercept(s): none y-intercept: (0, 2)

D: $[0, \infty)$ R: $[2, \infty)$

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

Transformations: right 4, down 1



x-intercept(s): (5, 0) y-intercept: (0, -2.59)

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

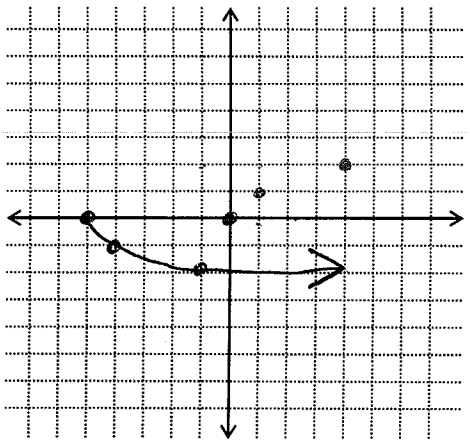
substitute zero in for x

$y = \sqrt[3]{0-4} - 1$

$= -2.52$

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

Transformations: reflection over the x-axis, left 5



x-intercept(s): (-5, 0) y-intercept: (0, -2.24)

D: $[-5, \infty)$ R: $(-\infty, 0]$

substitute zero in for x

$y = -\sqrt{0+5}$

$= -2.24$