

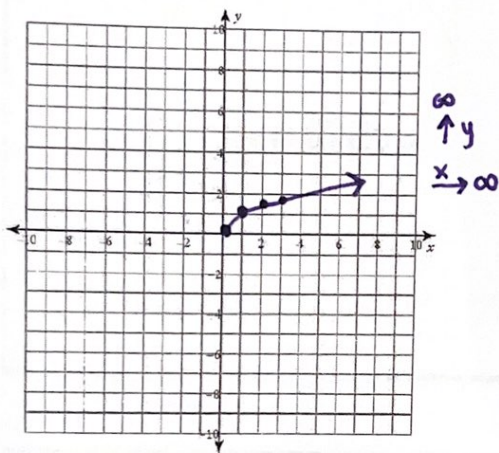
Graphing Radicals

Parent Function: $f(x) = \sqrt{x}$

Step 1: Make a table of values; $x = -3, -2, -1, 0, 1, 2, 3$

x	-3	-2	-1	0	1	2	3
f(x)	E	E	E	0	1	1.4	1.7

Step 2: Graph the points



Step 3: Find the following.

Domain: $[0, \infty)$

Range: $[0, \infty)$

x-intercept(s): $(0, 0)$] (x,y)

y-intercept(s): $(0, 0)$

Interval of Increase (x-values only): $(0, \infty)$

Interval of Decrease (x-values only): —

End Behavior (what is happening at the arrows): Right only: As $x \rightarrow \infty$, $f(x) \rightarrow \infty$

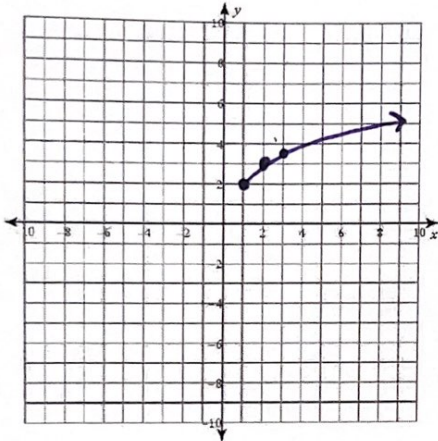
Maximum or Minimum Point (just one point): $(0, 0)$

Example: $f(x) = \sqrt{x-1} + 2$] right 1, up 2

Step 1: Make a table of values; $x = -3, -2, -1, 0, 1, 2, 3$

x	-3	-2	-1	0	1	2	3
f(x)	E	E	E	E	2	3	3.4

Step 2: Graph the points



Step 3: Find the following.

Domain: $[1, \infty)$

Range: $[2, \infty)$

x-intercept(s): None

y-intercept(s): None

Interval of Increase (x-values only): $(1, \infty)$

Interval of Decrease (x-values only): —

End Behavior (what is happening at the arrows): Right only: As $x \rightarrow \infty$, $f(x) \rightarrow \infty$

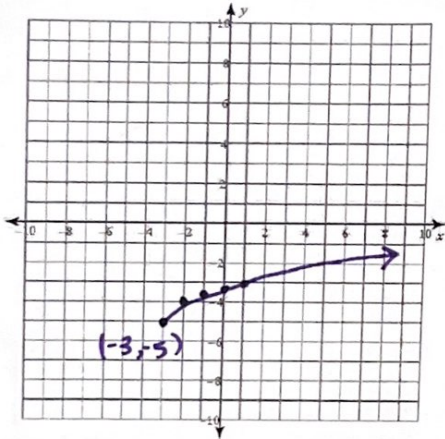
Maximum or Minimum Point (just one point): $(1, 2)$

Example: $f(x) = \sqrt{x+3} - 5$] left 3, down 5

Step 1: Make a table of values; $x = -3, -2, -1, 0, 1, 2, 3$

x	-3	-2	-1	0	1	2	3
f(x)	-5	-4	-3.6	-3.3	-3	-2.8	-2.6

Step 2: Graph the points



Step 3: Find the following.

Domain: $[-3, \infty)$

Range: $[-5, \infty)$

x-intercept(s): $(22, 0)$

y-intercept(s): $(0, -3.3)$

Interval of Increase (x-values only): $(-3, \infty)$

Interval of Decrease (x-values only): ---

End Behavior (what is happening at the arrows): Right: As $x \rightarrow \infty, f(x) \rightarrow \infty$

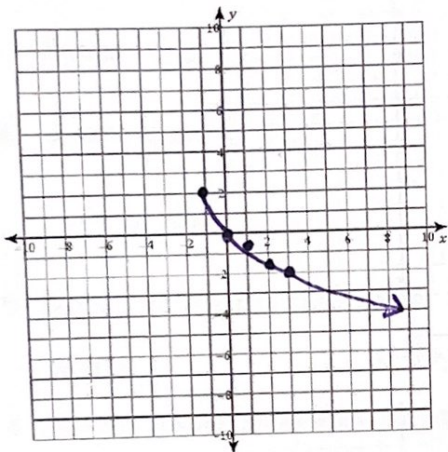
Maximum or Minimum Point (just one point): $(-3, -5)$

Example: $f(x) = -2\sqrt{x+1} + 2$] left 1, up 2

Step 1: Make a table of values; $x = -3, -2, -1, 0, 1, 2, 3$

x	-3	-2	-1	0	1	2	3
f(x)	X	X	2	0	-0.8	-1.4	-2

Step 2: Graph the points



Step 3: Find the following.

Domain: $[-1, \infty)$

Range: $(-\infty, 2]$

x-intercept(s): $(0, 0)$

y-intercept(s): $(0, 0)$

Interval of Increase (x-values only): —

Interval of Decrease (x-values only): $(-1, \infty)$

End Behavior (what is happening at the arrows): As $x \rightarrow \infty$, $f(x) \rightarrow -\infty$

Maximum or Minimum Point (just one point): $(-1, 2)$