

Sketch the graph and fill in the chart for each of the following. Describe the transformation beside the graph.

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

Starting Pt: $(0,0)$	Inc or Dec: $(0,\infty)$ INC
Domain: $[0,\infty)$	Range: $[0,\infty)$
Abs. Max or Abs Min: $(0,0)$	$(0,0)$ X-int
* End Behavior: $x \rightarrow 0, f(x) \rightarrow 0$ $x \rightarrow \infty, f(x) \rightarrow \infty$	

* $x \rightarrow$ always Domain #'s
 $f(x) \rightarrow$ always Range #'s

x	y
0	0
1	1
4	2
9	3

2. $f(x) = \sqrt{-x}$ Reflects over y-axis

Starting Pt: $(0,0)$	Inc or Dec: $(-\infty,0)$ Left \rightarrow right
Domain: $(-\infty,0]$	Range: $[0,\infty)$
Abs. Max or Abs Min: $(0,0)$	$(0,0)$ Y-int
* End Behavior: $x \rightarrow -\infty, f(x) \rightarrow \infty$ $x \rightarrow 0, f(x) \rightarrow 0$	

x	y
0	0
-1	1
-4	2
-9	3

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

Starting Pt: $(0,0)$	Inc or Dec: $(-\infty,\infty)$
Domain: $(-\infty,\infty)$	Range: $(-\infty,\infty)$
Abs. Max or Abs Min: none	Y-int $(0,0)$
* End Behavior: $x \rightarrow -\infty, f(x) \rightarrow -\infty$ $x \rightarrow \infty, f(x) \rightarrow \infty$	

x	y
-8	-2
-1	-1
0	0
1	1
8	2

4. $f(x) = -\sqrt[3]{x}$ Reflects over x-axis

Starting Pt: $(0,0)$	Inc or Dec: $(-\infty,\infty)$ Dec.
Domain: $(-\infty,\infty)$	Range: $(-\infty,\infty)$
Abs. Max or Abs Min: none	X-int $(0,0)$
* End Behavior: $x \rightarrow -\infty, f(x) \rightarrow \infty$ $x \rightarrow \infty, f(x) \rightarrow -\infty$	

x	y
-8	2
-1	1
0	0
1	-1
8	-2

X-int: plug 0 in for y + solve for x!

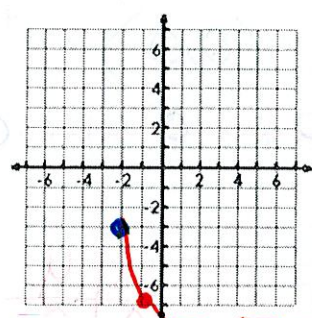
Y-int: plug 0 in for x + solve for y!

y-int: $y = -4\sqrt{0+2} - 3 = -8.66$

x-int: $0 = \sqrt{-2x-2} + 2$
 $-2 = \sqrt{-2x+2}$ ~~X~~ not possible

5. $f(x) = -4\sqrt{x+2} - 3$ **bowling**

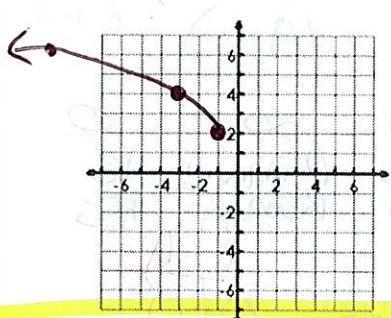
Starting Pt: $(-2, -3)$	Inc or Dec: $(-2, \infty)$
Domain: $[-2, \infty)$	Range: $(-\infty, -3]$
Abs. Max or Abs Min: $(-2, -3)$	y-int: $(0, -8.66)$
End Behavior: $x \rightarrow -2, f(x) \rightarrow -3$ $x \rightarrow \infty, f(x) \rightarrow -\infty$	



x	y
-2	-3
-1	-7
2	-11

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

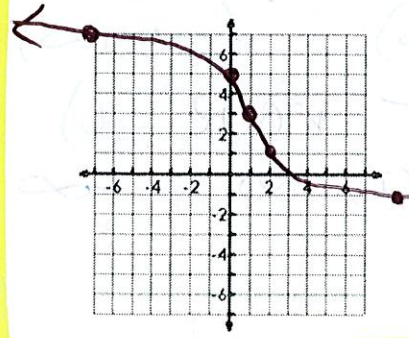
Starting Pt: $(-1, 2)$	Inc or Dec: $(-\infty, -1)$
Domain: $(-\infty, -1]$	Range: $[2, \infty)$
Abs. Max or Abs Min: $(-1, 2)$	x-int: none
End Behavior: $x \rightarrow -\infty, f(x) \rightarrow \infty$ $x \rightarrow -1, f(x) \rightarrow 2$	



x	y
-1	2
-3	4
-9	6

7. $f(x) = -2\sqrt[3]{x-1} + 3$ $0 = -2\sqrt[3]{x-1} + 3$

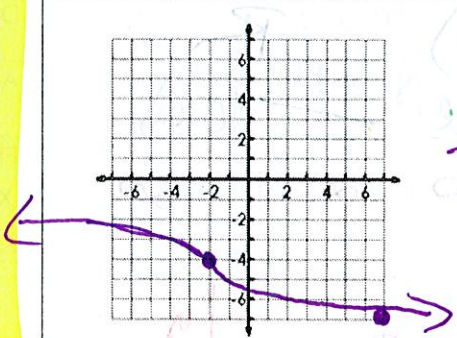
Starting Pt: $(1, 3)$	Inc or Dec: $(-\infty, \infty)$ Dec
Domain: $(-\infty, \infty)$	Range: $(-\infty, \infty)$
Abs. Max or Abs Min: none	x-int: $(4.375, 0)$
End Behavior: $x \rightarrow -\infty, f(x) \rightarrow \infty$ $x \rightarrow \infty, f(x) \rightarrow -\infty$	



x	y
-7	7
0	5
1	3
2	1
9	-1

8. $f(x) = \sqrt[3]{-3(x+2)} - 4$ **Reflect** $y = \sqrt[3]{-3(2)} - 4$

Starting Pt: $(-2, -4)$	Inc or Dec: $(-\infty, \infty)$ Dec
Domain: \mathbb{R}	Range: \mathbb{R}
Abs. Max or Abs Min: none	y-int: $(0, -5.82)$
End Behavior: $x \rightarrow -\infty, f(x) \rightarrow \infty$ $x \rightarrow \infty, f(x) \rightarrow -\infty$	



x	y
-2	-4
7	-7

Write the equation of the radical with the given transformations.

9. Compressed vertically by $\frac{1}{4}$, reflected over the y-axis, left 4, and down 72.

$f(x) = \frac{1}{4}\sqrt{-(x+4)} - 72$

10. Stretched horizontally by 7, reflected over the x-axis, right 13, and up 42.

$f(x) = -\sqrt[1/7]{(x-13)} + 42$