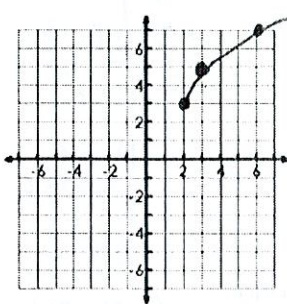


Sketch the graph and fill in the chart for each of the following. Describe the transformation beside the graph.

1.  $f(x) = 2\sqrt{x-2} + 3$  shoot

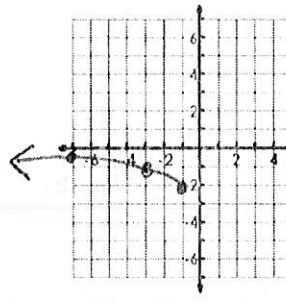
Starting Pt: $(2, 3)$	Inc or Dec: $(2, \infty)$
Domain: $[2, \infty)$	Range: $[3, \infty)$
Abs. Max or Abs Min: $(2, 3)$ (Abs Min)	y-int: none
End Behavior: $x \rightarrow 2, f(x) \rightarrow 3$ $x \rightarrow \infty, f(x) \rightarrow \infty$	



x	y
2	3
3	5
6	7

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

Starting Pt: $(-1, -2)$	Inc or Dec: $(-\infty, -1)$
Domain: $(-\infty, -1]$	Range: $[-2, \infty)$
Abs. Max or Abs Min: $(-1, -2)$ (Abs Min)	x-int: $(-9, 0)$
End Behavior: $x \rightarrow -\infty, f(x) \rightarrow \infty$ $x \rightarrow -1, f(x) \rightarrow -2$	



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

x-int

$$0 = \sqrt{-\frac{1}{2}(x+1)} - 2$$

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

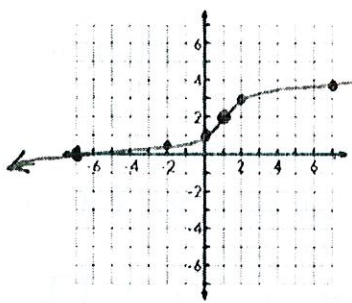
$$4 = -\frac{1}{2}(x+1)$$

$$-8 = x+1$$

$$-9 = x$$

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

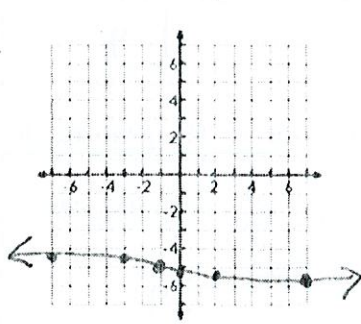
Starting Pt: $(1, 2)$	Inc or Dec: $(-\infty, \infty)$
Domain: $(-\infty, \infty)$	Range: $(-\infty, \infty)$
Abs. Max or Abs Min: none	x-int: $(-7, 0)$
End Behavior: $x \rightarrow -\infty, f(x) \rightarrow -\infty$ $x \rightarrow \infty, f(x) \rightarrow \infty$	



x	y
-7	0
-3	1.6
0	1
1	2
2	3
7	3.8

4.  $f(x) = -1/4(\sqrt[3]{x+1}) - 5$  back stroke

Starting Pt: $(-1, -5)$	Inc or Dec: $(-\infty, \infty)$
Domain: $(-\infty, \infty)$	Range: $(-\infty, \infty)$
Abs. Max or Abs Min: none	y-int: $(0, -5.4)$
End Behavior: $x \rightarrow -\infty, f(x) \rightarrow \infty$ $x \rightarrow \infty, f(x) \rightarrow -\infty$	

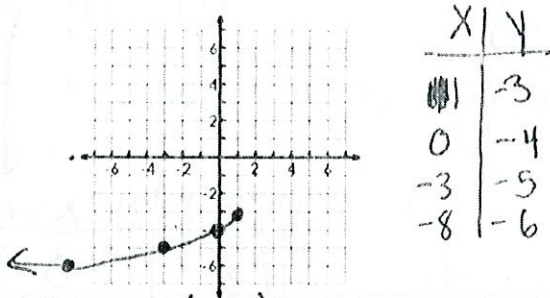


x	y
-7	-4.5
-3	-4.7
-1	-5
0	-5.3
2	-5.4
7	-5.5

\* Use decimal points too if you need them to see what's happening on the graph!

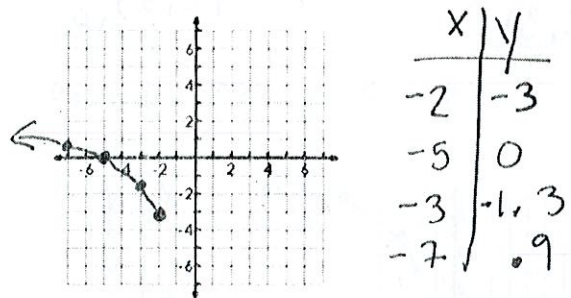
5.  $f(x) = -\sqrt{-(x-1)} - 3$  *baead crumbs*

Starting Pt: $(1, -3)$	Inc or Dec: <b>INC</b>
Domain: $(-\infty, 1]$	Range: $(-\infty, -3]$
Abs. Max or Abs Min: $(1, -3)$	Y-int $(0, -4)$
End Behavior: $x \rightarrow -\infty, f(x) \rightarrow -\infty$ $x \rightarrow 1, f(x) \rightarrow -3$	



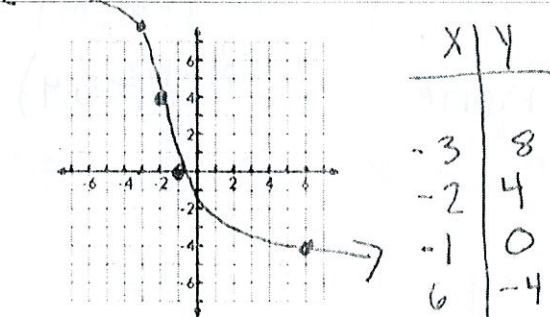
6.  $f(x) = \sqrt{-3(x+2)} - 3$  *bouquet*

Starting Pt: $(-2, -3)$	Inc or Dec: <b>DEC</b>
Domain: $(-\infty, -2]$	Range: $[-3, \infty)$
Abs. Max or Abs Min: $(-2, -3)$	X-int $(-5, 0)$
End Behavior: $x \rightarrow -\infty, f(x) \rightarrow \infty$ $x \rightarrow -2, f(x) \rightarrow -3$	



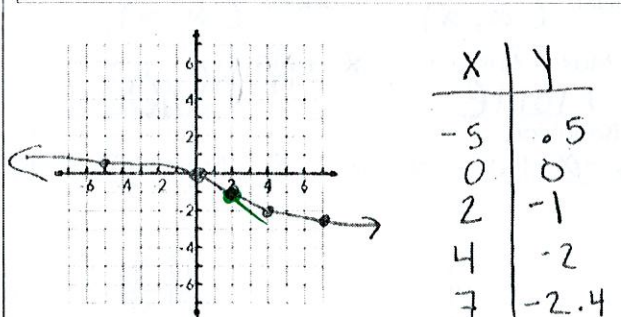
7.  $f(x) = -4\sqrt[3]{x+2} + 4$  *back stroke*

Starting Pt: $(-2, 4)$	Inc or Dec: <b>DEC</b>
Domain: $(-\infty, \infty)$	Range: $(-\infty, \infty)$
Abs. Max or Abs Min: <b>none</b>	X-int $(-1, 0)$
End Behavior: $x \rightarrow -\infty, f(x) \rightarrow \infty$ $x \rightarrow \infty, f(x) \rightarrow -\infty$	



8.  $f(x) = \sqrt[3]{-1/2(x-2)} - 1$  *back stroke*

Starting Pt: $(2, -1)$	Inc or Dec: <b>DEC</b>
Domain: $(-\infty, \infty)$	Range: $(-\infty, \infty)$
Abs. Max or Abs Min: <b>none</b>	Y-int $(0, 0)$
End Behavior: $x \rightarrow -\infty, f(x) \rightarrow \infty$ $x \rightarrow \infty, f(x) \rightarrow -\infty$	



Write the equation of the radical with the given transformations.

9. Compressed vertically by 2/3, reflected over the x-axis, left 31, and down 24.

$$f(x) = -\frac{2}{3}\sqrt{x+31} - 24$$

10. Compressed ~~stretched~~ horizontally by 1/2, reflected over the x-axis, right 29, and up 87.

$$f(x) = -\sqrt{2(x-29)} + 87$$

\* make sure you put ( ) around the ( ) in the table, otherwise it will change your starting point!