

Name: Key

Period: _____ Date: _____



Graphing Radical Functions Worksheet #1

Radical Functions are of the form $f(x) = a\sqrt{x-h} + k$

To graph a radical function, use tables and your knowledge of transformations.

If using a table, find convenient x-values that lie in the domain of the function.

The Domain of $f(x) = a\sqrt{x-h} + k$ is $x-h \geq 0$.

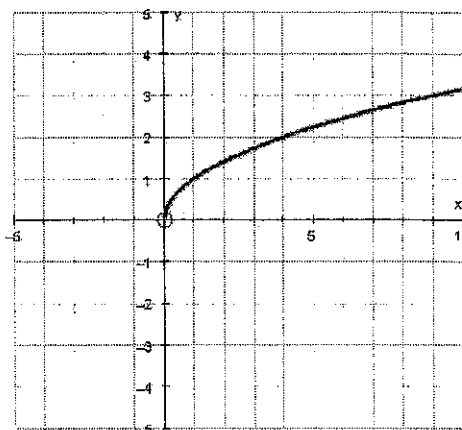
The parent function $f(x) = \sqrt{x}$ or $f(x) = \sqrt[3]{x}$ can be stretched, shifted (horizontally or vertically) and flipped

a : The vertical stretch or flip.

h : The horizontal shift

k : The vertical shift.

Graph is $f(x) = \sqrt{x}$



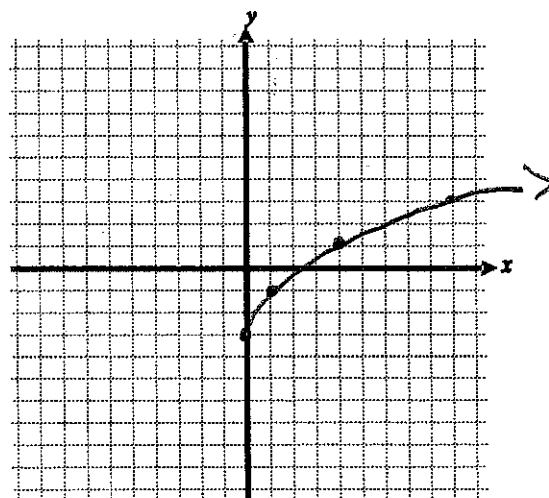
Complete the following tables and graph each function.

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

Domain: $[0, \infty)$

Range: $[-3, \infty)$

x	f(x)	y
0	$2\sqrt{0} - 3 = 0 - 3 = -3$	-3
1	$2\sqrt{1} - 3 = 2 \cdot 1 - 3 = -1$	-1
4	$2\sqrt{4} - 3 = 2 \cdot 2 - 3 = 1$	1
9	$2\sqrt{9} - 3 = 2 \cdot 3 - 3 = 3$	3

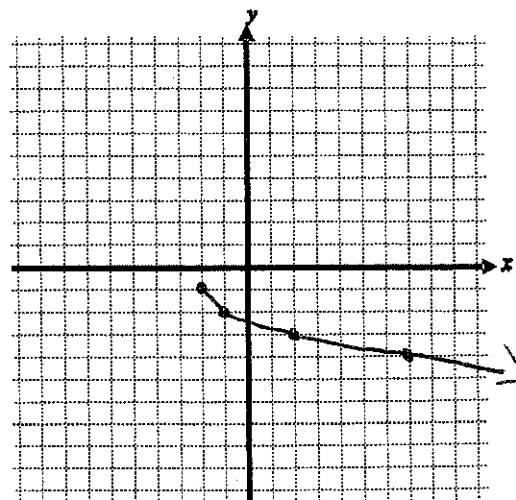


2. $f(x) = -\sqrt{x+2} - 1$

Domain: $[-2, \infty)$

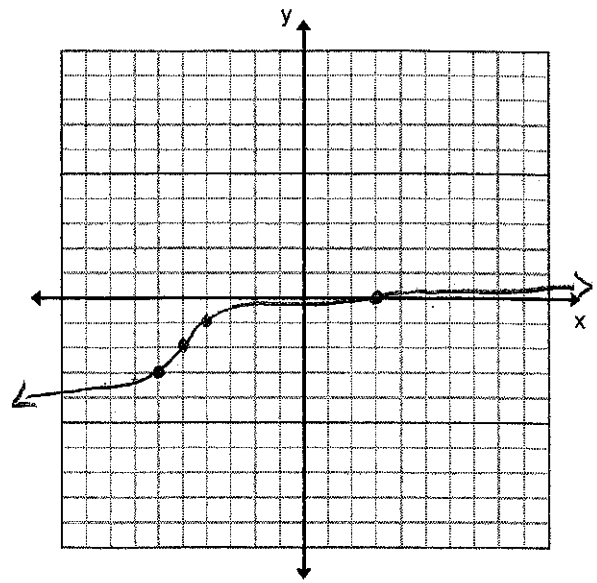
Range: $[-1, \infty)$

x	f(x)	y
-2	$-\sqrt{-2+2} - 1 = 0 - 1 = -1$	-1
-1	$-\sqrt{-1+2} - 1 = -1 - 1 = -2$	-2
2	$-\sqrt{2+2} - 1 = -2 - 1 = -3$	-3
7	$-\sqrt{7+2} - 1 = -3 - 1 = -4$	-4



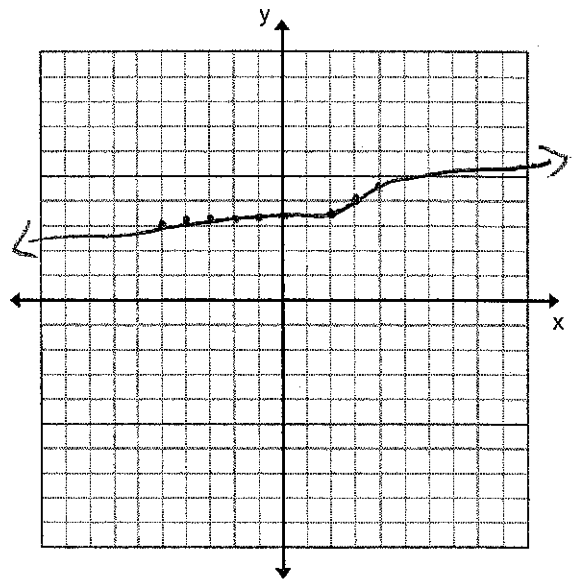
3. $f(x) = \sqrt[3]{x+5} - 2$ Domain: $(-\infty, \infty)$
Range: $(-\infty, \infty)$

x	f(x)	y
-6	$\sqrt[3]{-6+5} - 2 = -1 - 2$	-3
-5	$\sqrt[3]{-5+5} - 2 = 0 - 2$	-2
-4	$\sqrt[3]{-4+5} - 2 = 1 - 2$	-1
3	$\sqrt[3]{3+5} - 2 = 2 - 2$	0



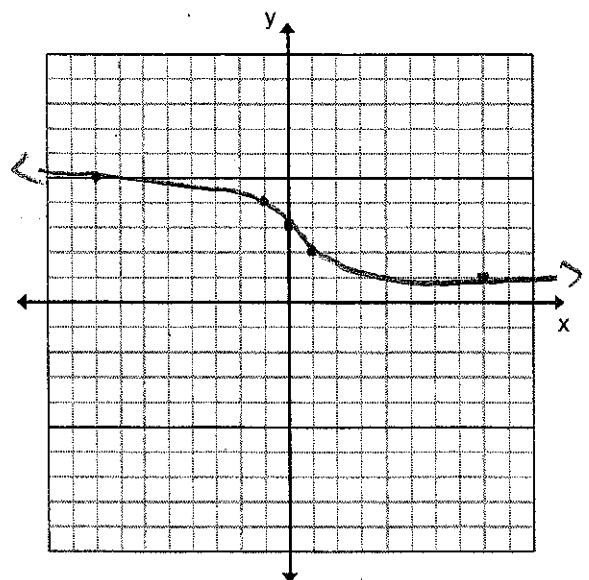
4. $f(x) = \frac{1}{2}\sqrt[3]{x-3} + 4$ Domain: $(-\infty, \infty)$
Range: $(-\infty, \infty)$

x	f(x)	y
-5	$\frac{1}{2}\sqrt[3]{-5-3} + 4 = \frac{1}{2} \cdot -2 + 4$	3
2	$\frac{1}{2}\sqrt[3]{2-3} + 4 = \frac{1}{2} \cdot -1 + 4$	3.5
3	$\frac{1}{2}\sqrt[3]{3-3} + 4 = \frac{1}{2} \cdot 0 + 4$	4
4	$\frac{1}{2}\sqrt[3]{4-3} + 4 = \frac{1}{2} \cdot 1 + 4$	4.5



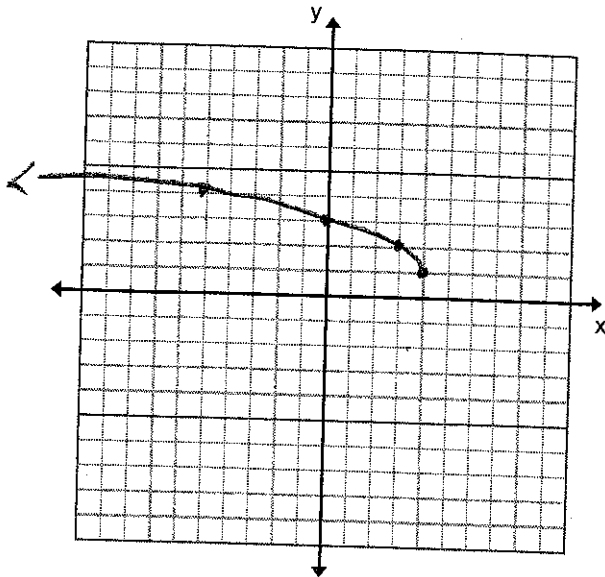
5. $f(x) = -\sqrt[3]{x} + 3$ Domain: $(-\infty, \infty)$
Range: $(-\infty, \infty)$

x	f(x)	y
-8	$-\sqrt[3]{-8} + 3 = 2 + 3$	5
-1	$-\sqrt[3]{-1} + 3 = 1 + 3$	4
0	$-\sqrt[3]{0} + 3 = 0 + 3$	3
1	$-\sqrt[3]{1} + 3 = -1 + 3$	2
8	$-\sqrt[3]{8} + 3 = -2 + 3$	1



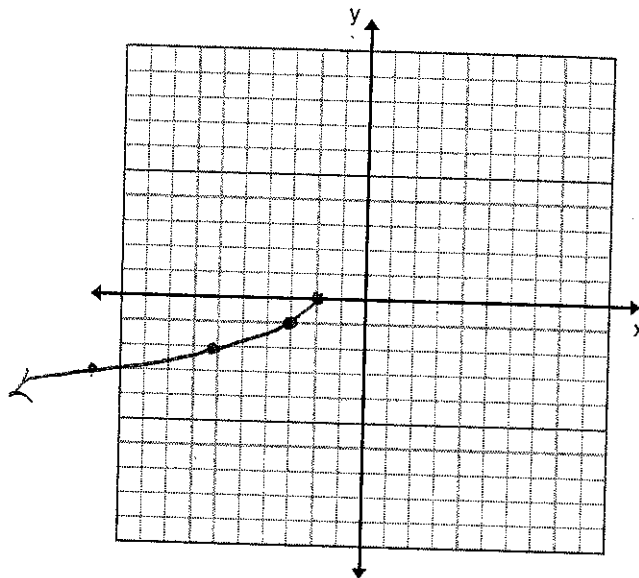
6. $f(x) = \sqrt{4-x} + 1$ Domain: $(-\infty, 4]$
Range: $[1, \infty)$

x	f(x)	y
4	$\sqrt{4-4} + 1 = 0 + 1$	1
3	$\sqrt{4-3} + 1 = 1 + 1$	2
0	$\sqrt{4-0} + 1 = 2 + 1$	3
-5	$\sqrt{4+5} + 1 = 3 + 1$	4



7. $f(x) = -\sqrt{-2-x}$ Domain: $(-\infty, -2]$
Range: $(-\infty, 0]$

x	f(x)	y
-2	$-\sqrt{-2+2} = 0$	0
-3	$-\sqrt{-2+3} = -1$	-1
-6	$-\sqrt{-2+6} = -2$	-2
-11	$-\sqrt{-2+11} = -3$	-3



8. $f(x) = \sqrt[3]{x+1} - 4$ Domain: $(-\infty, \infty)$
Range: $(-\infty, \infty)$

x	f(x)	y
-9	$\sqrt[3]{-9+1} - 4 = -2 - 4$	-6
-2	$\sqrt[3]{-2+1} - 4 = -1 - 4$	-5
-1	$\sqrt[3]{-1+1} - 4 = 0 - 4$	-4
0	$\sqrt[3]{0+1} - 4 = 1 - 4$	-3
7	$\sqrt[3]{7+1} - 4 = 2 - 4$	-2

