Graphing Cube Roots

Parent Graph:

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

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

Transformations:

$$f(x) = a\sqrt[3]{x-h} + k$$

vertical stretch or shrink

horizontal shift

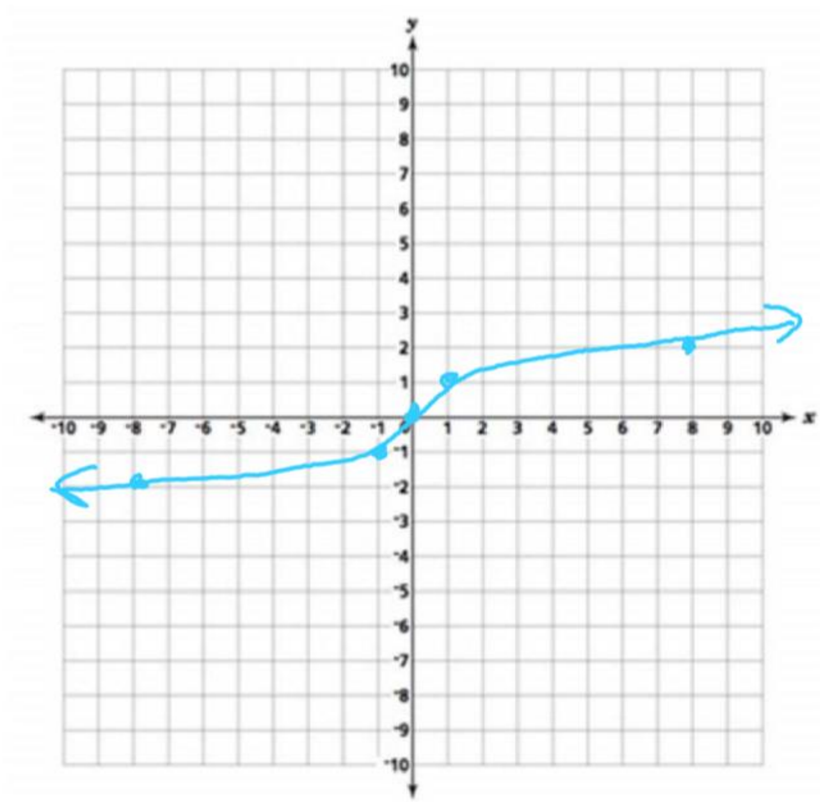
vertical shift

Domain:

$(-\infty, \infty)$

Range:

$(-\infty, \infty)$

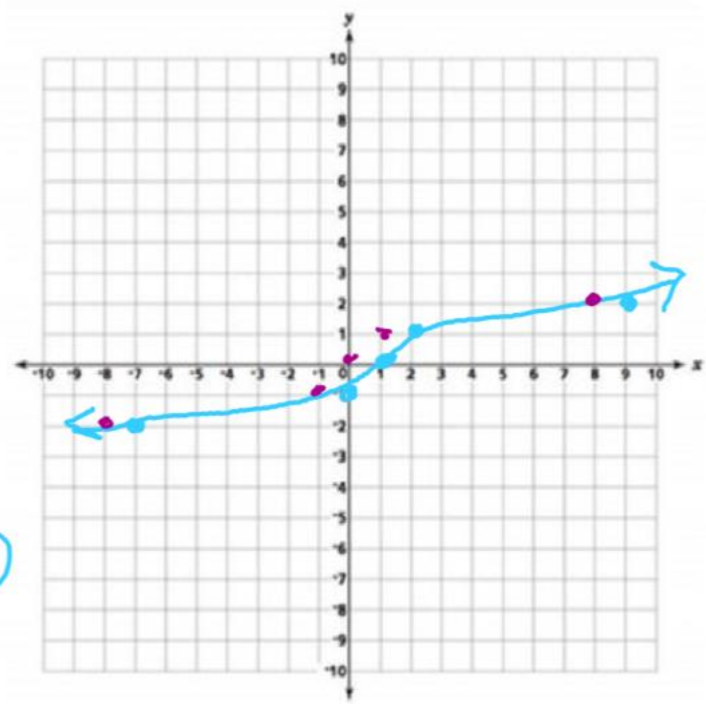


$f(x) = \sqrt[3]{x-1}$

X	$y = \sqrt[3]{x}$
-8	-2
-1	-1
0	0
1	1
8	2

a=1 h=1 k=0

x+h	ay+k
x+1	y
-7	-2
0	-1
1	0
2	1
9	2

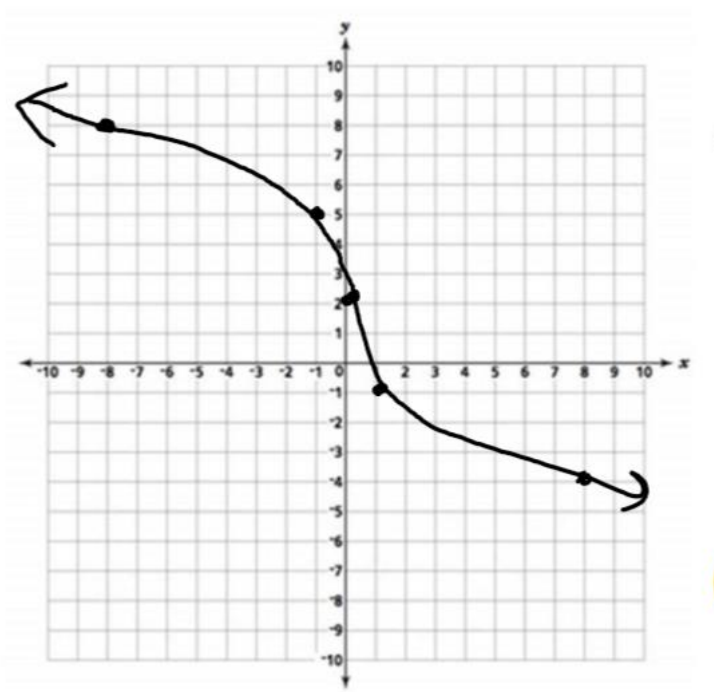


$f(x) = -3\sqrt[3]{x} + 2$

X	Y
-8	-2
-1	-1
0	0
1	1
8	2

a=-3 h=0 k=2

X	-3y+2
-8	8
-1	5
0	2
1	-1
8	-4



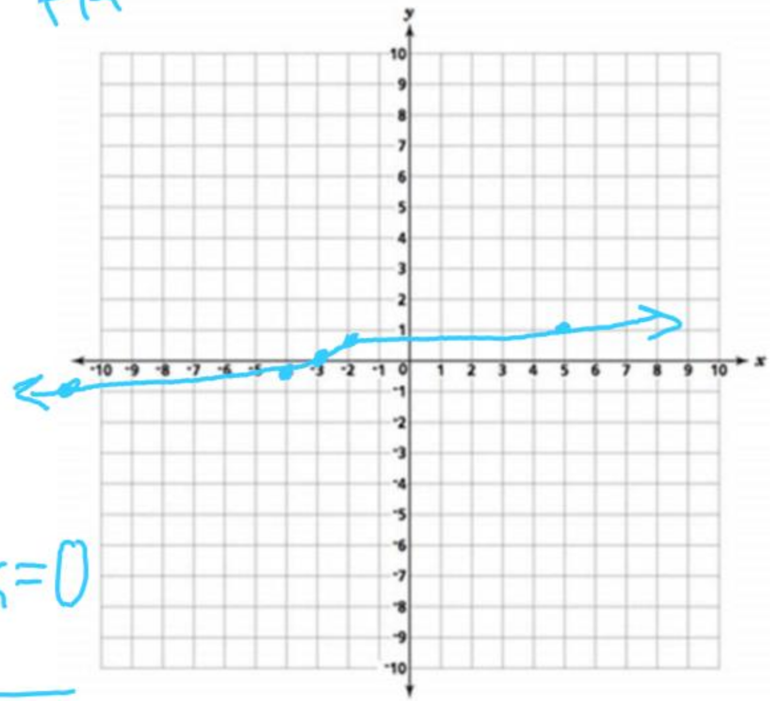
$y = a\sqrt{x-h} + k$

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

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

$a = \frac{1}{2}$ $h = -3$ $k = 0$

x-3	$\frac{1}{2}$ y
-11	-1
-4	-0.5
-3	0
-2	0.5
5	1

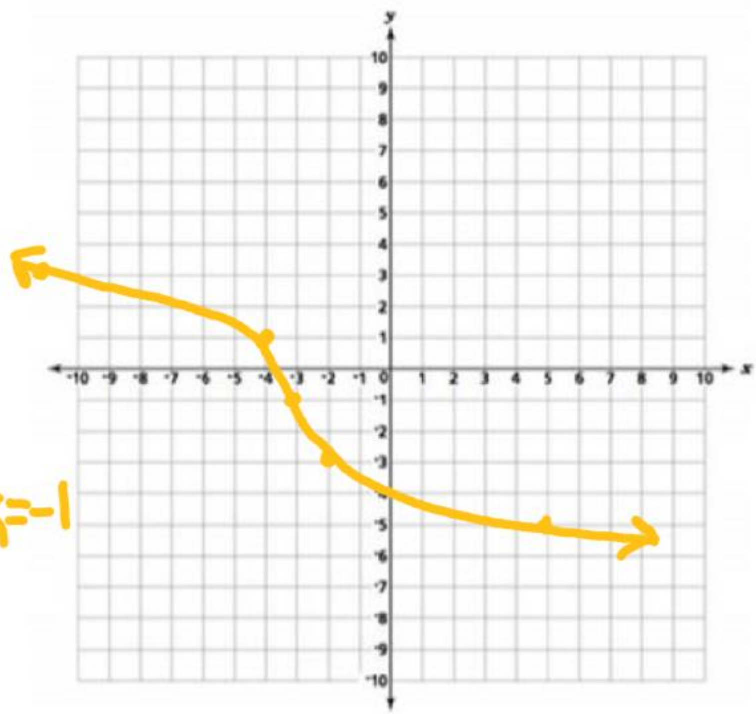


$f(x) = -2\sqrt[3]{x+3} - 1$

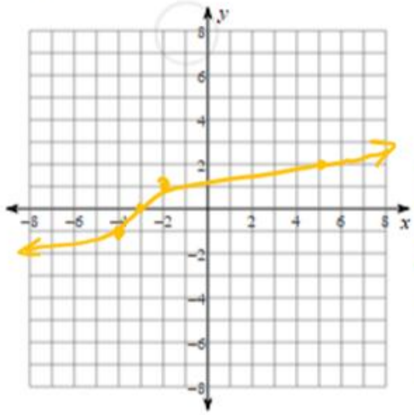
x	y
-8	-2
-1	-1
0	0
1	1
8	2

$a = -2$ $h = -3$ $K = -1$

x-3	-2y-1
-11	3
-4	1
-3	-1
-2	-3
5	-5



7) $y = \sqrt[3]{x+3}$

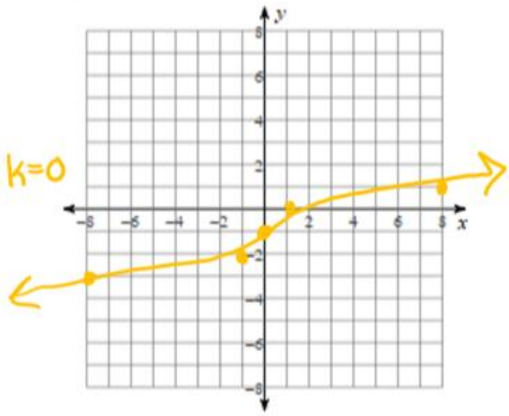


$a=1$ $h=-3$ $k=0$

$x-3$	y
-11	-2
-4	-1
-3	0
-2	1
5	2

8) $y = \sqrt[3]{x} - 1$

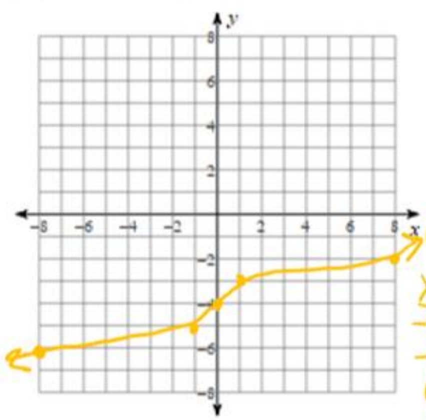
x	y
-8	-2
-1	-1
0	0
1	1
8	2



$a=1$ $h=0$ $k=-1$

x	$y-1$
-8	-3
-1	-2
0	-1
1	0
8	1

9) $y = 2\sqrt[3]{x} - 4$

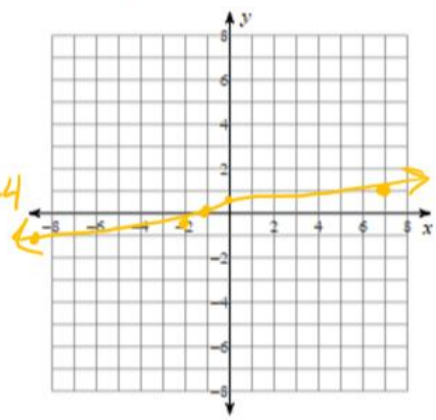


$a=2$ $h=0$ $k=-4$

x	$y-4$
-8	-6
-1	-5
0	-4
1	-3
8	-2

10) $y = \frac{1}{2}\sqrt[3]{x+1}$

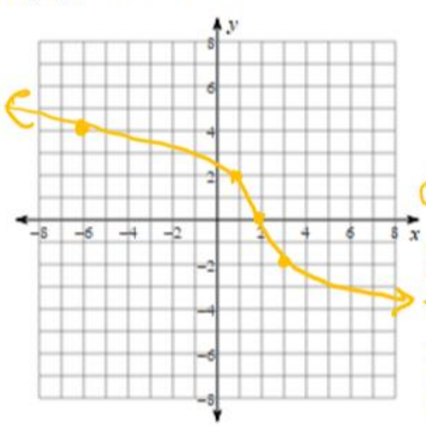
x	y
-8	-2
-1	-1
0	0
1	1
8	2



$a=\frac{1}{2}$ $h=-1$ $k=0$

$x-1$	$\frac{1}{2}y$
-9	-1
-2	-0.5
-1	0
0	0.5
7	1

11) $y = -2\sqrt[3]{x-2}$

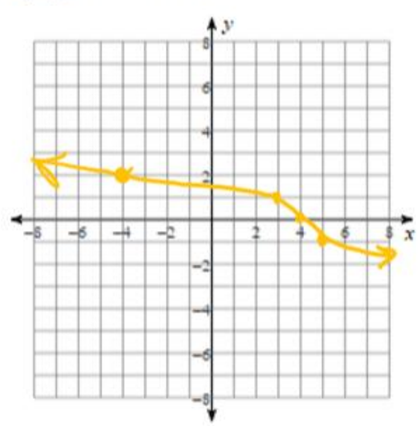


$a=-2$ $h=2$ $k=0$

$x+2$	$-2y$
-6	4
1	2
2	0
3	-2
10	-4

12) $y = -\sqrt[3]{x-4}$

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



$a=-1$ $h=4$ $k=0$

$x+4$	$-y$
-4	2
3	1
4	0
5	-1
12	-2

4. $g(x) = -\sqrt{x-1}$

a = -1 h = 1 k = 0

x	y
0	0
1	1
4	2
9	3

Horizontal Shift: right 1
Vertical Shift: none
Stretch/Shrink: none
Reflect: yes

Domain: $[1, \infty)$

Range: $(-\infty, 0]$

x+1	-y
1	0
2	-1
5	-2
10	-3