

Key

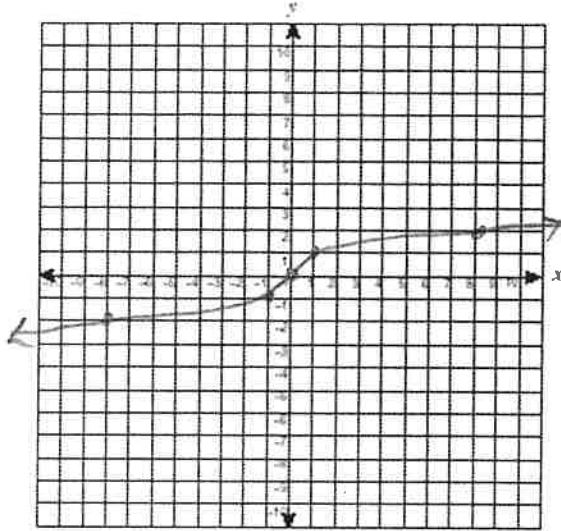
Name : _____

Date: _____

Radical Functions & Graphing Part 2 Worksheet

For each radical function, graph the function and state the *domain*, *range*, *x-int*, and *y-int*:

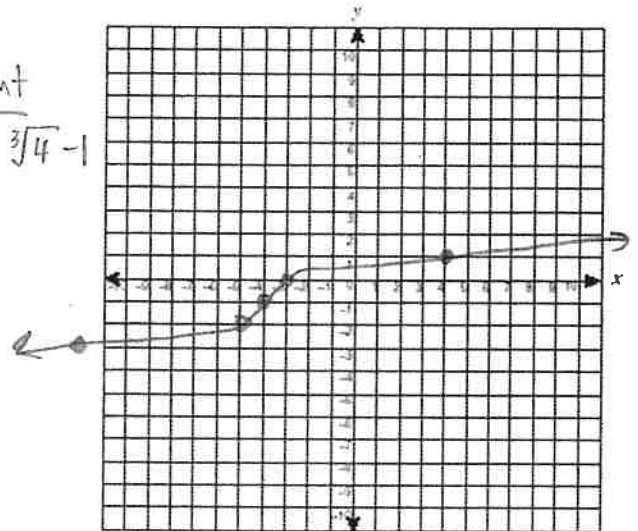
1) $y = \sqrt[3]{x}$



Domain: $x \in \mathbb{R}$ x-int: 0
 Range: $y \in \mathbb{R}$ y-int: 0

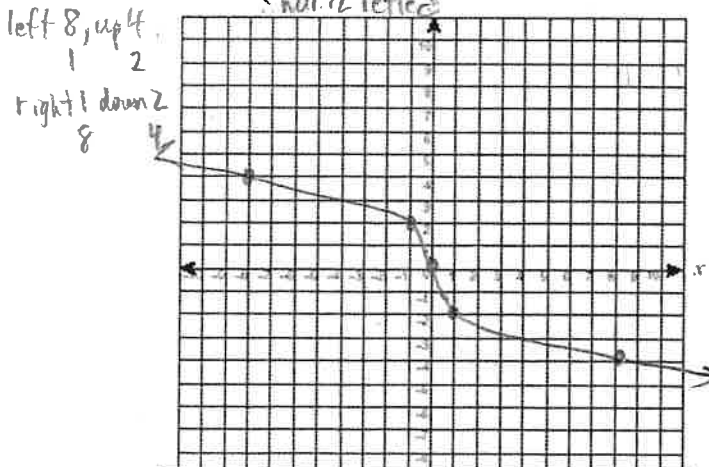
2) $y = \sqrt[3]{x+4} - 1$ vertex (-4, -1)

y-int
 $y = \sqrt[3]{4} - 1$



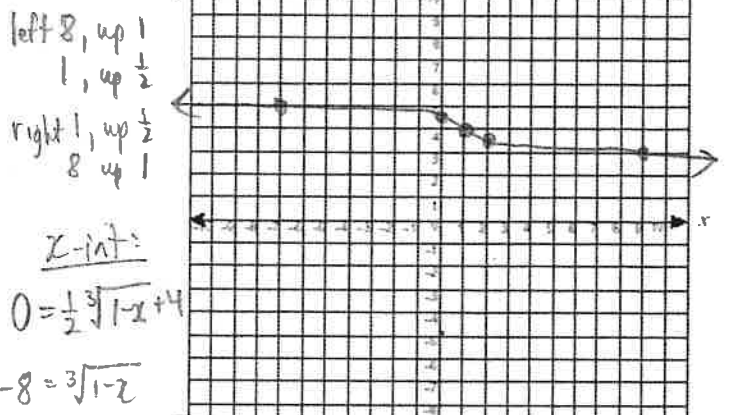
Domain: $x \in \mathbb{R}$ x-int: -3
 Range: $y \in \mathbb{R}$ y-int: $\sqrt[3]{4} - 1$

3) $y = 2\sqrt[3]{-x}$ vertex (0,0)
 horiz reflect



Domain: $x \in \mathbb{R}$ x-int: 0
 Range: $y \in \mathbb{R}$ y-int: 0

4) $y = \frac{1}{2}\sqrt[3]{1-x} + 4$ $y = \frac{1}{2}\sqrt[3]{-(x-1)} + 4$
 vertex (1,4)
 horiz reflect



x-int:
 $0 = \frac{1}{2}\sqrt[3]{1-x} + 4$
 $-8 = \sqrt[3]{1-x}$
 $-512 = 1-x$
 $x = 513$

Domain: $x \in \mathbb{R}$ x-int: 513
 Range: $y \in \mathbb{R}$ y-int: 4.5

For each, graph the original function and the square root of the function. Then give the domain and range of the square root of the function.

5) $y = x^2 - 9$ and $y = \sqrt{x^2 - 9}$

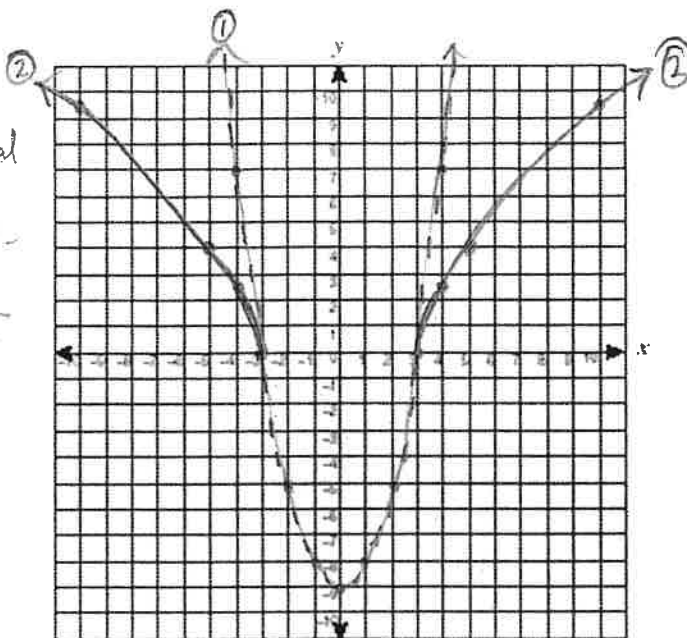
vertex $(0, -9)$
 over 1, up 1
 2 4
 3 9
 4 16

between -3 and 3 , the original function is negative, so this section is undefined for $\sqrt{\quad}$

$y = \sqrt{f(x)}$

x	y
-3	0
-4	$\sqrt{7}$
-5	4
-10	$\sqrt{91}$
3	0
4	$\sqrt{7}$
5	4
10	$\sqrt{91}$

$y = \sqrt{x^2 - 9}$



Domain: $x \leq -3, x \geq 3$

Range: $y \geq 0$

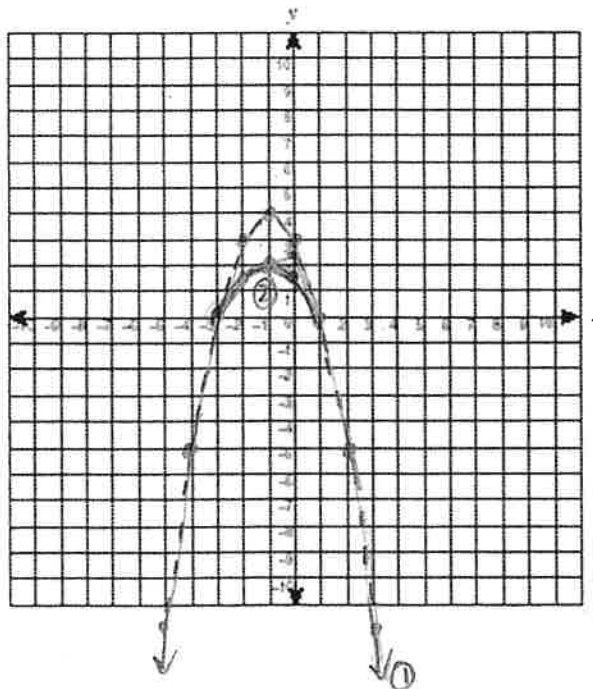
6) $y = -(x + 1)^2 + 4$ and

$y = \sqrt{-(x + 1)^2 + 4}$

where $x \leq -3$ and $x \geq 3$, $y = \sqrt{f(x)}$ will be undefined

x	y
-3	0
-2	$\sqrt{3}$
-1	2
0	$\sqrt{3}$
1	0

$y = \sqrt{-(x + 1)^2 + 4}$



Domain: $-3 \leq x \leq 1$

Range: $0 \leq y \leq 2$