

Graphing Cube Root Functions (With Graphing Calculator)

The Cube Root Function

1. What is the parent equation for the Cube Root Function? $f(x) = \sqrt[3]{x}$

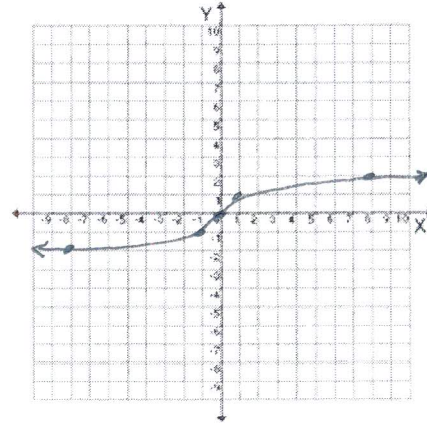
2. Graph the parent function for Cube Root.

3. Domain: $(-\infty, \infty)$

Range: $(-\infty, \infty)$

4. X-intercept: $(0, 0)$

y-intercept: $(0, 0)$



5. What are the coordinates for the 5 major

points: $(-8, -2)$, $(-1, -1)$, $(0, 0)$, $(1, 1)$, $(8, 2)$

6. Based on your knowledge of parameter changes (also called transformations), describe the roles a, h, and k play for the family of functions $y = a\sqrt[3]{x-h} + k$.

(i.e what does 'a' do, what does 'h' do, what does 'k' do, and so on.....)

a: vertical stretch or shrink / reflection over x-axis if neg.

h: horizontal shift

k: vertical shift

7. How would each of the following graphs change in relation to the parent graph?

a) $y = \sqrt[3]{x-3}$ right 3

b) $y = \sqrt[3]{x+4}$ left 4

c) $y = -3\sqrt[3]{x}$ reflection over x-axis / stretch by 3

d) $y = \sqrt[3]{x} + 5$ up 5

e) $y = \sqrt[3]{x} - 6$ down 6

f) $y = 3\sqrt[3]{x-2} + 7$ stretch by 3, right 2, up 7

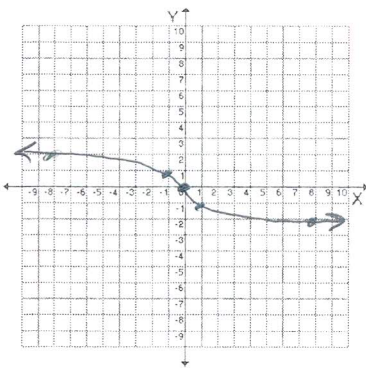
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8. State the Domain and Range of each function.

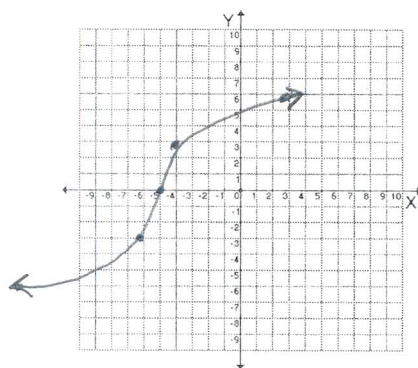
	Domain	Range
a) $y = 5\sqrt[3]{x}$	<u>$(-\infty, \infty)$</u>	<u>$(-\infty, \infty)$</u>
b) $y = \sqrt[3]{x+8}$		
c) $y = -\sqrt[3]{x-7}$		
d) $y = \sqrt[3]{x+2} - 3$		
e) $y = -\sqrt[3]{x-4} + 1$		

9. Graph the following cube root functions using parameter changes.

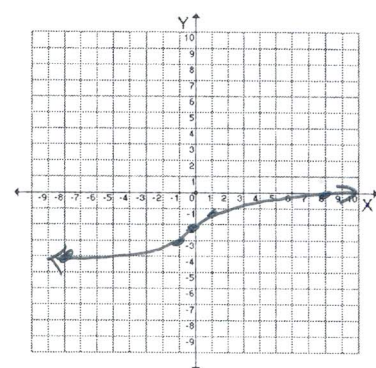
a) $y = -\sqrt[3]{x}$



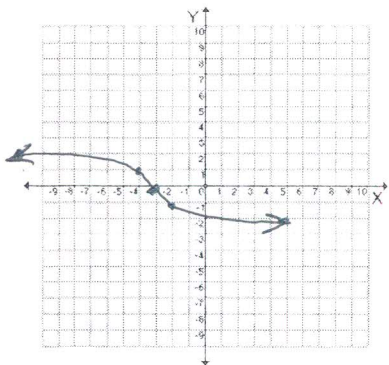
b) $y = 3\sqrt[3]{x+5}$



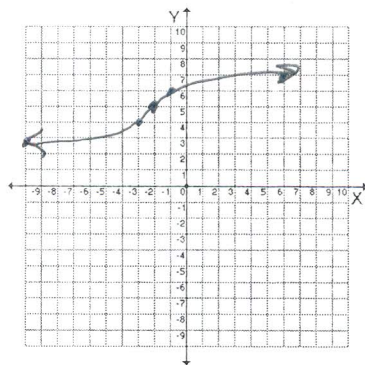
c) $y = \sqrt[3]{x} - 2$



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



e) $y = \sqrt[3]{x+2} + 5$



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

