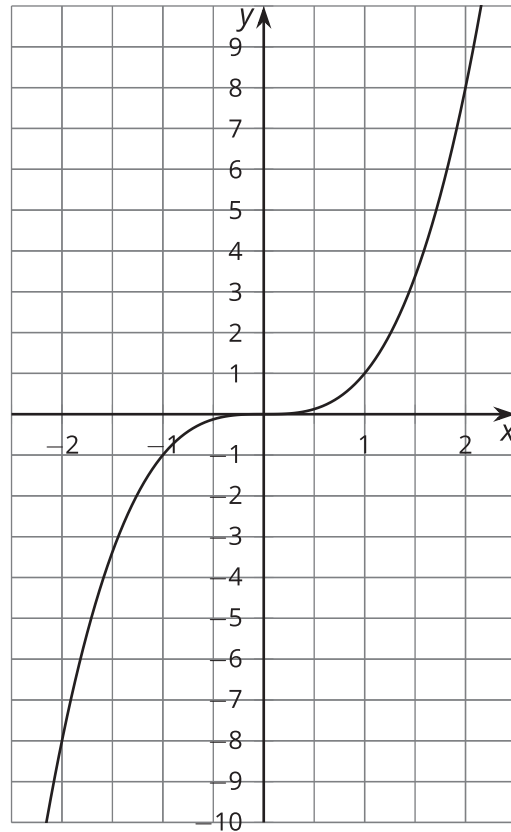
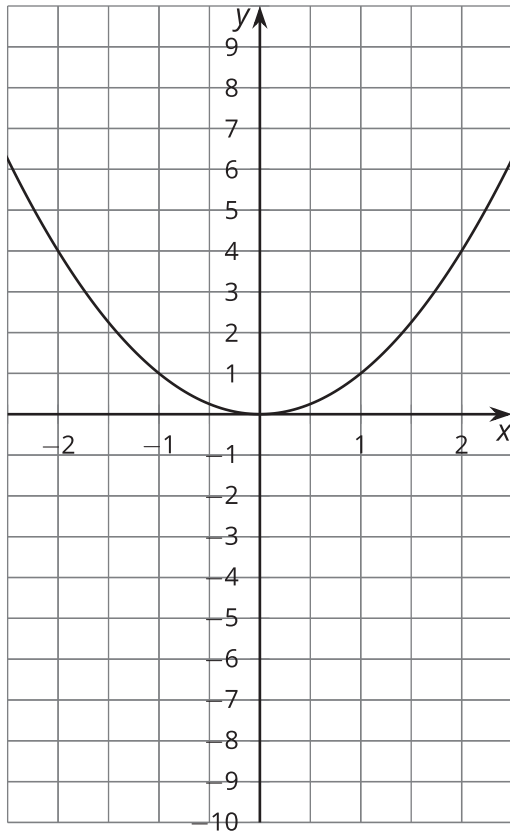


Unit 3 Lesson 8: Cubes and Cube Roots

1 Put Your Arm(s) Up (Warm up)

Student Task Statement

How are these graphs the same? How are they different?



2 Finding Cube Roots with a Graph

Student Task Statement

How many solutions are there to each of the following equations? Estimate the solution(s) from the graph of $y = x^3$. Check your estimate by substituting it back into the equation.

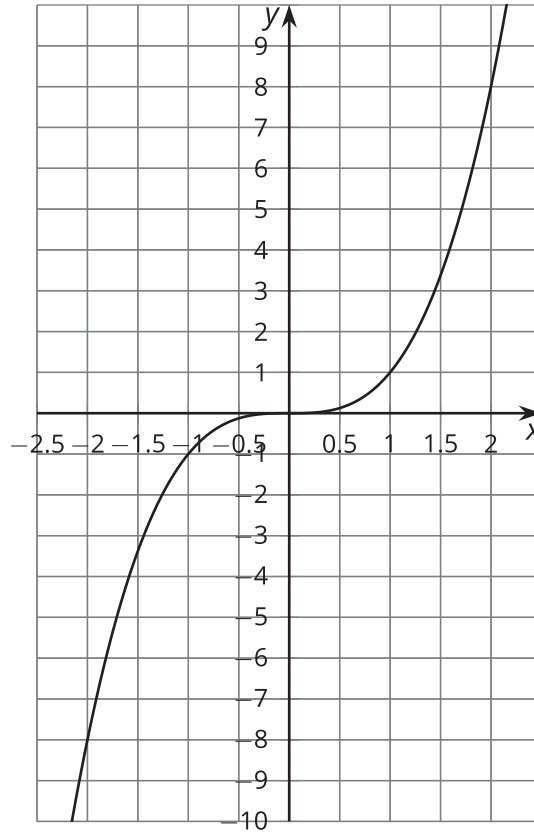
1. $x^3 = 8$

2. $x^3 = 2$

3. $x^3 = 0$

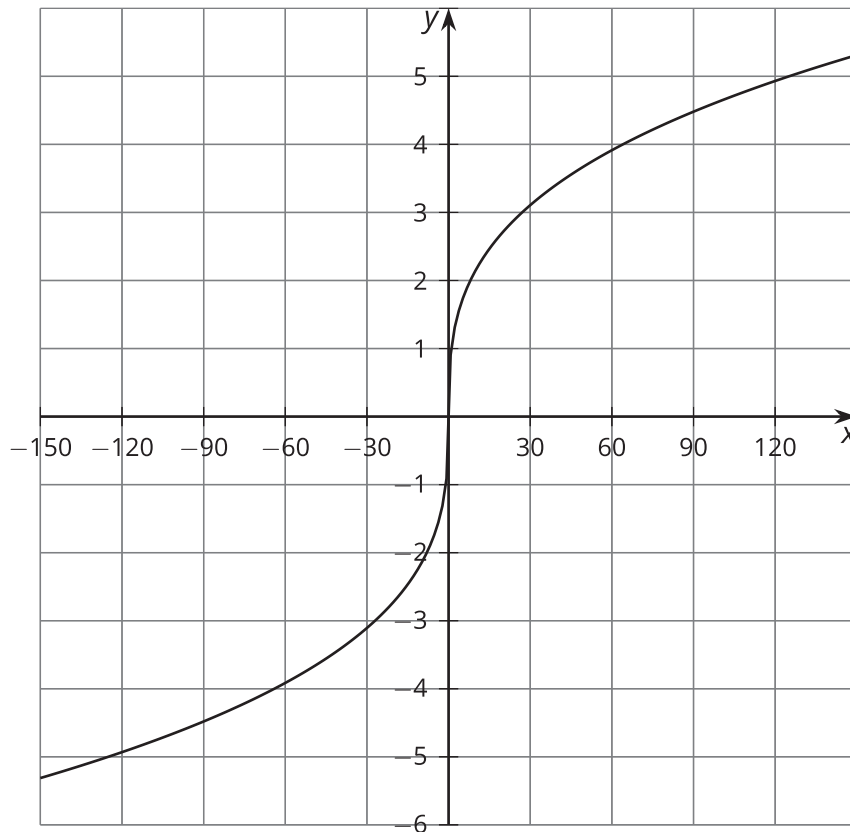
4. $x^3 = -8$

5. $x^3 = -2$



3 Cube Root Equations (Optional)

Student Task Statement



1. Use the graph of $y = \sqrt[3]{x}$ to estimate the solution(s) to $\sqrt[3]{x} = -4$.
2. Use the meaning of cube roots to find an exact solution to the equation $\sqrt[3]{x} = -4$. How close was your estimate?
3. Find the solution of the equation $\sqrt[3]{x} = 3.5$ using the meaning of cube roots. Use the graph to check that your solution is reasonable.

4 Solve These Equations With Cube Roots in Them

Student Task Statement

Here are a lot of equations:

- $\sqrt[3]{t+4} = 3$

- $-10 = -\sqrt[3]{a}$

- $\sqrt[3]{3-w} - 4 = 0$

- $\sqrt[3]{z} + 9 = 0$

- $\sqrt[3]{r^3 - 19} = 2$

- $5 - \sqrt[3]{k+1} = -1$

- $\sqrt[3]{p+4} - 2 = 1$

- $6 - \sqrt[3]{b} = 0$

- $\sqrt[3]{2n+3} = -5$

- $4 + \sqrt[3]{-m} + 4 = 6$

- $-\sqrt[3]{c} = 5$

- $\sqrt[3]{s-7} + 3 = 0$

1. Without solving, identify 3 equations that you think would be the least difficult to solve and 3 equations that you think would be the most difficult to solve. Be prepared to explain your reasoning.
2. Choose 4 equations and solve them. At least one should be from your "least difficult" list and at least one should be from your "most difficult" list.