Name ______________________________ Date ______________ Class______________

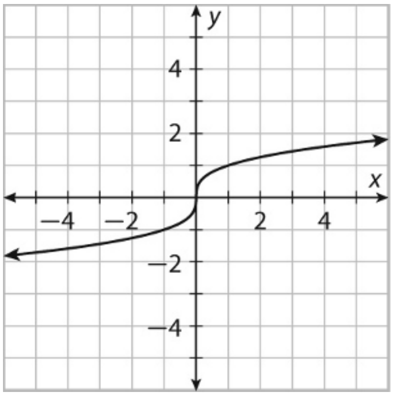
LESSON 10-3

Graphing Cube Root Functions

Practice and Problem Solving: A/B

Graph each cube root function. Then describe the graph as a transformation of the graph of the parent function. (The graph of the parent function is shown.)

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



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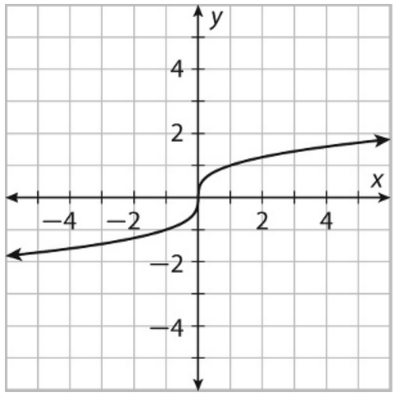
2. $g(x) = \frac{1}{2}\sqrt[3]{x+2} - 3$



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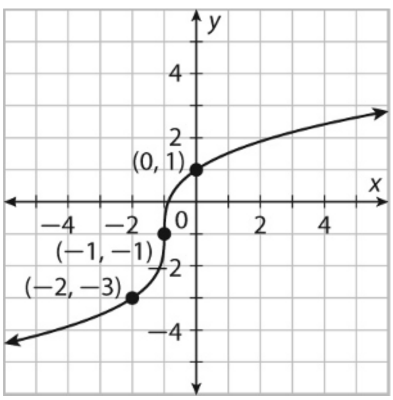
Write the equation of the cube root function shown on the graph. Use the form $g(x) = a\sqrt[3]{x-h} + k$.

3.



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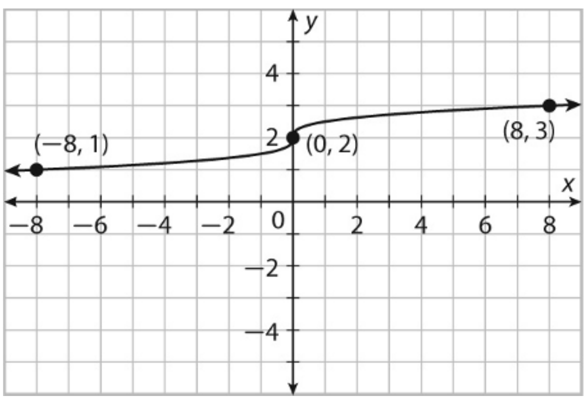
4.



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Write an equation, $g(x)$, for the transformation equation described.

5. The graph of $f(x) = \sqrt[3]{x}$ is reflected across the *y*-axis and then translated 4 units down and 12 units to the left.

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6. The graph of $f(x) = \sqrt[3]{x}$ is stretched vertically by a factor of 8, reflected across the *x*-axis, and then translated 11 units to the right.

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4. a. -1
   b. 1
   c. -3
   d. 2
   e. Translated 2 units up, 3 units left, and reflected across the *x*-axis.

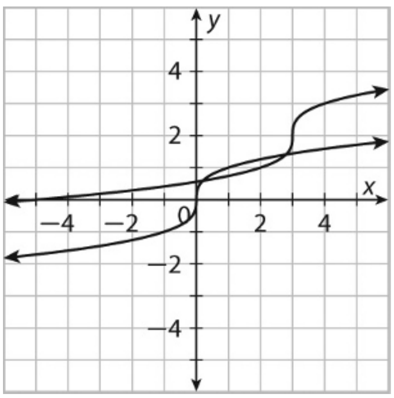
Success for English Learners

1. In the function $f(x) = a\sqrt{x-h} + k$, the value of *a* tells you if the function is stretch or compressed.
2. In the function $f(x) = a\sqrt{x-h} + k$ or the function $f(x) = \sqrt{\frac{1}{b}(x-h)} + k$, the value of *k* tells you how the function is shifted up or down.
3. In the function $f(x) = \sqrt{\frac{1}{b}(x-h)} + k$, if the value of *b* is less than 0, the function is reflected over the *y*-axis.

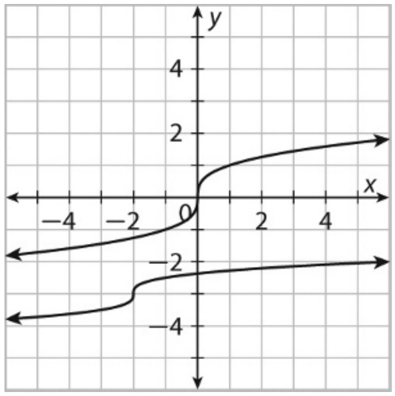
LESSON 10-3

Practice and Problem Solving: A/B

1. Translation 3 units to the right and 2 units up



2. Vertical compression by a factor of $\frac{1}{2}$; translation 2 units to the left and 3 units down



3. $g(x) = 2\sqrt[3]{x+1} - 1$
4. $g(x) = \frac{1}{2}\sqrt[3]{x} + 2$
5. $g(x) = \sqrt[3]{-x+12} - 4$
6. $g(x) = -8\sqrt[3]{x-11}$

Practice and Problem Solving: C

1. Reflection across the *x*-axis, vertical stretch by a factor of 2.5, translation 2 units left and 1.5 units up