ACTIVITY 12.1

Using Technology

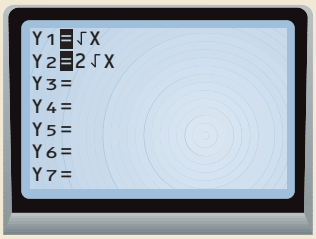
Graphing Calculator Activity for use with Lesson 12.1

Functions Involving Square Roots

A graphing calculator or a computer can be used to graph functions involving square roots. To graph such a function use the $\sqrt{\ }$ key.

EXPLORING THE CONCEPT

1. Use a graphing calculator to graph $y = a\sqrt{x}$ for $a = 1$.
2. Repeat **Step 1** for $a = 2$, 3, and 4. Show all four graphs on the same screen.
3. Describe the effect that a has on the graph of $y = a\sqrt{x}$.



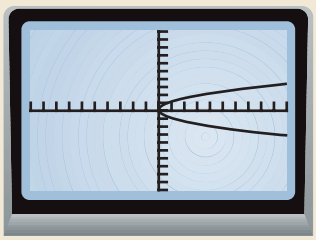
STUDENT HELP

INTERNET KEYSTROKE HELP

See keystrokes for several models of calculators at www.mcdougallittell.com

EXPLORING THE CONCEPT

4. Use a graphing calculator to graph $y = a\sqrt{x}$ for $a = -1$ and $a = 1$.
5. Graph $y = a\sqrt{x}$ for $a = -4$ and $a = 4$.
6. Graph $y = a\sqrt{x}$ for $a = -9$ and $a = 9$.
7. Describe the effect that a has on the graph of $y = a\sqrt{x}$ when a is negative.

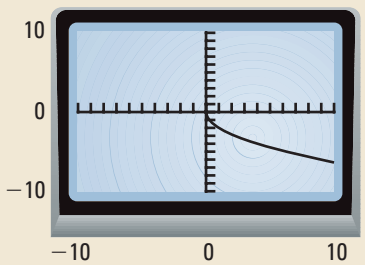


DRAWING CONCLUSIONS

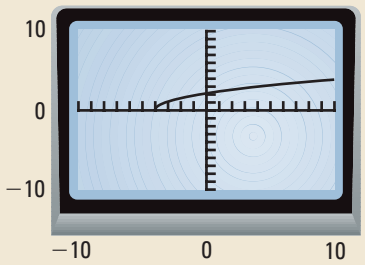
1. Use a graphing calculator to graph the function $y = \sqrt{x} + k$ for $k = -3, -1, 2$, and 5. Show all four graphs on the same screen. Then describe the effect that k has on the graph of $y = \sqrt{x} + k$.
2. Use a graphing calculator to graph the function $y = \sqrt{x + k}$ for $k = -3, -1, 2$, and 5. You may need to use parentheses around the radicand. Show all four graphs on the same screen. Then describe the effect that k has on the graph of $y = \sqrt{x + k}$.

EXTENDING THE CONCEPT **Find the value of *a* or *k* so that the graph of the function matches the given graph.**

3. $y = a\sqrt{x}$



4. $y = \sqrt{x + k}$



5. $y = \sqrt{x} + k$