METHOD 2

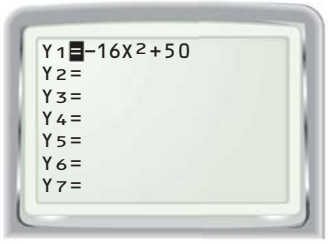
Using a Graph Another approach is to write a quadratic equation and then use a graph to solve the equation. You can use a graphing calculator to make the graph.

STEP 1 **Write** an equation that models the situation using the height function $h = -16t^2 + h_0$.

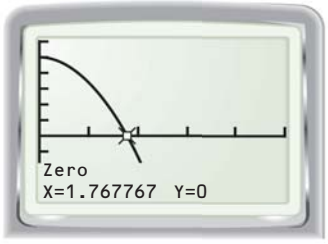
$h = -16t^2 + h_0$ **Write height function.**

$0 = -16t^2 + 50$ **Substitute 0 for h and 50 for h_0.**

STEP 2 **Enter** the function $y = -16x^2 + 50$ into a graphing calculator. Note that time is now represented by x and height is now represented by y.



STEP 3 **Graph** the height function. Adjust the viewing window so that you can see the point where the graph crosses the positive x-axis. Find the positive x-value for which $y = 0$ using the *zero* feature. The graph shows that $y = 0$ when $x \approx 1.8$.



▶ The container hits the ground about 1.8 seconds after it is dropped.

PRACTICE

SOLVING EQUATIONS **Solve the quadratic equation using a table and using a graph.**

1. $2x^2 - 12x + 10 = 0$
2. $x^2 + 7x + 12 = 0$
3. $9x^2 - 30x + 25 = 0$
4. $7x^2 - 3 = 0$
5. $x^2 + 3x - 6 = 0$

6. **WHAT IF?** How long does it take for an egg container to hit the ground when dropped from a height of 100 feet? Find the answer using a table and using a graph.

7. **WIND PRESSURE** The pressure P (in pounds per square foot) from wind blowing at s miles per hour is given by $P = 0.00256s^2$. What wind speed produces a pressure of 30 lb/ft^2? Solve this problem using a table and using a graph.

8. **BIRDS** A bird flying at a height of 30 feet carries a shellfish. The bird drops the shellfish to break it and get the food inside. How long does it take for the shellfish to hit the ground? Find the answer using a table and using a graph.

9. **DROPPED OBJECT** You are dropping a ball from a window 29 feet above the ground to your friend who will catch it 4 feet above the ground. How long is the ball in the air before your friend catches it? Solve this problem using a table and using a graph.

10. **REASONING** *Explain* how to use the *table* feature of a graphing calculator to approximate the solution of the problem on page 272 to the nearest hundredth of a second. Use this procedure to find the approximate solution.