# 1-6 • Guided Problem Solving

GPS Exercise 82

As riders plunge down the hill of a roller coaster, you can approximate the height h, in feet, above the ground of their roller-coaster car. Use the function $h = 155 - 16t^2$, where t is the number of seconds since the start of the descent.

155 ft

a. How far is a rider from the bottom of the hill after 1 second? 2 seconds?

b. **Critical Thinking** Does it take more than or less than 4 seconds to reach the bottom? Explain.
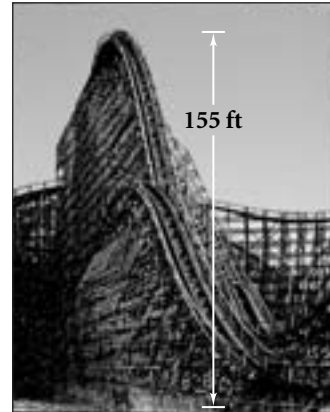
Read and Understand

1. What do each of the variables in the function represent?

   _____

2. What are the units that would be used for values of h and t? _____

Plan and Solve

3. How far is the rider from the bottom of the hill after 1 second? _____

4. How far is the rider from the bottom of the hill after 2 seconds? _____

5. What value would you use for h if the roller coaster car were at the bottom of the hill? _____

6. Does it take more than or less than 4 seconds to reach the bottom? Explain. _____

   _____

Look Back and Check

7. Explain how you use order of operations when using the roller coaster function.

   _____

Solve Another Problem

8. For a different roller coaster, the height h, in feet, above the ground of the roller-coaster car is approximated by the function $h = 200 - 16t^2$. How far is a rider from the bottom of the hill on this roller coaster after 2 seconds?