# POLYNOMIALS AND FACTORING

▶ *Where can scientists dish up astronomical research projects?*
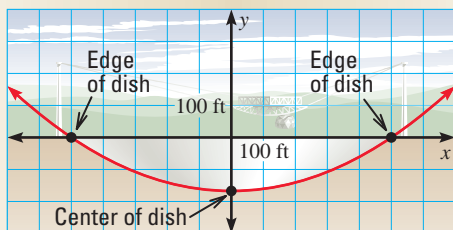
## APPLICATION: Arecibo Observatory

*T*he Arecibo radio telescope is the largest single-dish radio telescope in the world. Its enormous reflector dish, built in a natural limestone sinkhole in Puerto Rico, is sensitive enough to collect radio waves originating 7000 trillion miles from Earth.

The cross section of many radio telescopes, such as the one shown below, where *x* and *y* are in feet, can be modeled by a polynomial equation whose graph is a parabola. You will solve polynomial equations in Chapter 10.



### Think & Discuss

Use the graph modeling a cross section of the telescope's reflector dish for Exercises 1 and 2.

**1.** Find the *x*-intercepts. How can you use this information to find the diameter of the dish?

**2.** Estimate the depth of the dish.

### Learn More About It

You will use an algebraic model of a radio telescope in Exercises 53 and 54 on page 601.

**APPLICATION LINK** Visit www.mcdougallittell.com for more information about the Arecibo Observatory.