Now

In Chapter 9, you will apply the big ideas listed below and reviewed in the Chapter Summary on page 668. You will also use the key vocabulary listed below.

Big Ideas

1. **Writing equations of conic sections**
2. **Graphing equations of conic sections**
3. **Solving quadratic systems**

KEY VOCABULARY

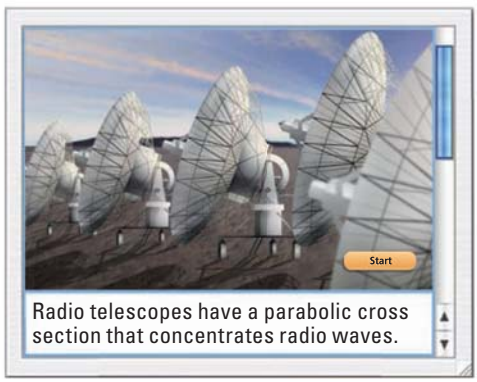
- distance formula, *p. 614*
- focus, foci, *pp. 620, 634, 642*
- directrix, *p. 620*
- circle, *p. 626*
- ellipse, *p. 634*
- vertices, *pp. 634, 642*
- major axis, *p. 634*
- co-vertices, *p. 634*
- minor axis, *p. 634*
- hyperbola, *p. 642*
- transverse axis, *p. 642*
- conic sections, *p. 650*
- general second-degree equation, *p. 653*
- quadratic system, *p. 658*

Why?

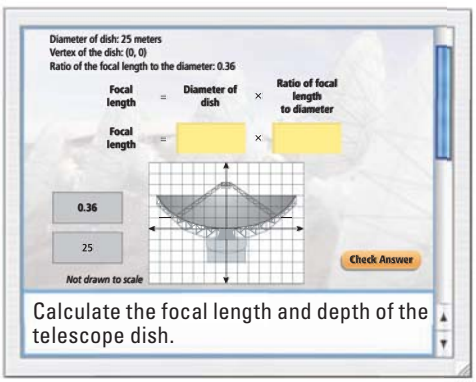
You can use conic sections to describe the shapes of real-world objects. For example, you can use a parabola to model the cross section of a radio telescope.

Animated Algebra

The animation illustrated below for Exercise 58 on page 625 helps you answer this question: How do the dimensions of a radio telescope determine the equation that models its cross section?



Radio telescopes have a parabolic cross section that concentrates radio waves.



Calculate the focal length and depth of the telescope dish.

Animated Algebra at classzone.com

Other animations for Chapter 9: pages 615, 621, 635, 643, 649, and 651