In Chapter 13, you will apply the big ideas listed below and reviewed in the Chapter Summary on page 897. You will also use the key vocabulary listed below.

Big Ideas

1. **Using trigonometric functions**
2. **Using inverse trigonometric functions**
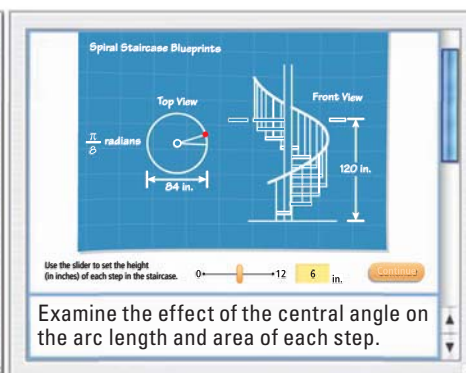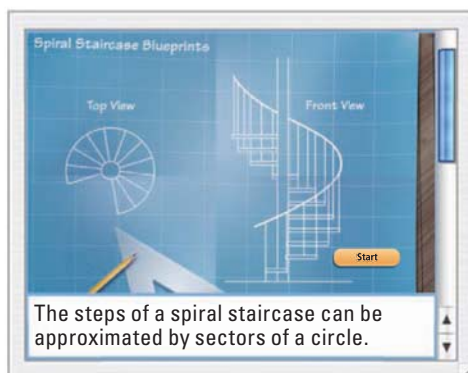3. **Applying the law of sines and law of cosines**

KEY VOCABULARY

• sine, *p. 852*

• cosine, *p. 852*

• tangent, *p. 852*

• cosecant, *p. 852*

• secant, *p. 852*

• cotangent, *p. 852*

• radian, *p. 860*

• central angle, *p. 861*

• unit circle, *p. 867*

• reference angle, *p. 868*

• inverse sine, *p. 875*

• inverse cosine, *p. 875*

• inverse tangent, *p. 875*

• law of sines, *p. 882*

• law of cosines, *p. 889*

Why?

You can use angle measures and trigonometry to find lengths and areas in real life. For example, you can use an angle measure to find the area of each step in a spiral staircase.

Animated Algebra

The animation illustrated below for Exercise 53 on page 864 helps you answer this question: How does the central angle of a step in a spiral staircase affect the step's area?

The steps of a spiral staircase can be approximated by sectors of a circle.

Examine the effect of the central angle on the arc length and area of each step.

Animated **Algebra** at classzone.com

Other animations for Chapter 13: pages 854, 867, 884, and 897