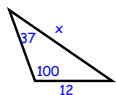## Lesson 10.5 Warm Up (Clickers)

1. Find the area of the regular decagon that has a side length of 8 in and an apothem of 5.9 in.
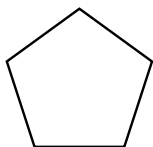
2. Find the area of the rhombus below.

3. Find x.

Ex. What is the area of a regular pentagon with 4-in sides? Round to the nearest square inch.
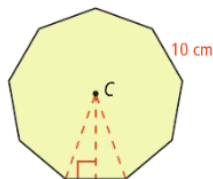

Ex. A tabletop has the shape of a regular decagon with a radius of 9.5 in. What is the area of the tabletop to the nearest square inch?

Lesson 10.5 Trigonometry & Area

You can use trigonometry to find the area of a regular polygon when you know the length of a side, radius, or apothem.

Ex. What is the area of a regular nonagon with 10-cm sides?

Ex. A stop sign is a regular octagon. The standard size has a 16.2-in radius. What is the area of the stop sign to the nearest square inch?
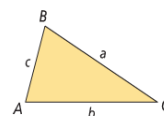

$A = 1/2\ bh$ is not the only formula that can be used to find the area of a triangle. If you know two sides and the included angle, you can calculate the area also.

Theorem 10-8   Area of a Triangle Given SAS

The area of a triangle is half the product of the lengths of two sides and the sine of the included angle.

Area of $\triangle ABC = \frac{1}{2}bc(\sin A)$

Ex. Find the area of the triangle below.

Ex. What is the area of the triangle below?

10 in.

34°

16 in.