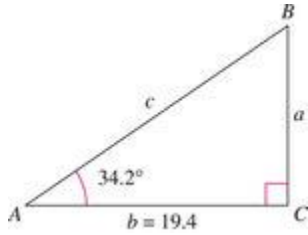


## Law of Sines (Section 6.1)

**Warm-up:** Solve the following triangle.



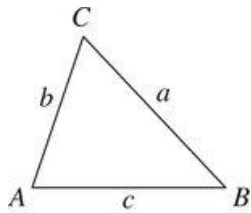
a = \_\_\_\_\_

c = \_\_\_\_\_

B = \_\_\_\_\_

### Law of Sines

Consider the following oblique triangle: Oblique Triangle = \_\_\_\_\_

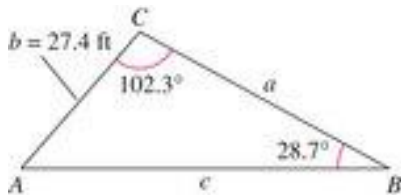


***Law of Sines***

(Allows you to \_\_\_\_\_)

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

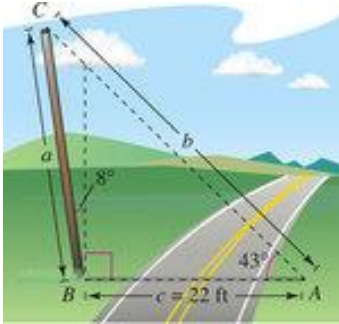
**Example 1:** Solve the triangle.



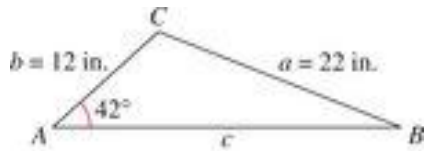
**Practice Problem 1:** Solve triangle ABC:  $A = 30^\circ$ ,  $B = 45^\circ$ , and  $a = 32$  feet.

## Law of Sines (Section 6.1)

**Example 2:** A pole tilts toward the sun at an  $8^\circ$  angle from the vertical, and it casts a 22-foot shadow. The angle of elevation from the tip of the shadow to the top of the pole is  $43^\circ$ . How tall is the pole?



**Example 3:** Solve the triangle.



**Example 4:** Solve the triangle.

$$a = 15, b = 25, \text{ and } A = 85^\circ$$

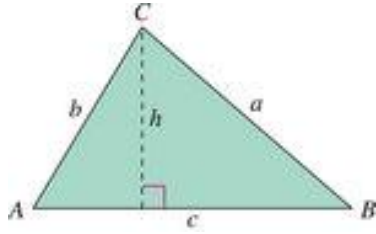
**Example 5:** Solve the triangle.

$$a = 12, b = 31, A = 20.5^\circ$$

## Law of Sines (Section 6.1)

### Area of Oblique Triangles

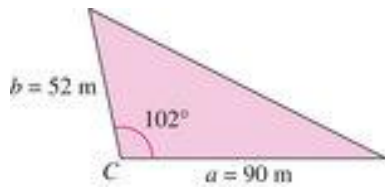
Find the area when the height is not known! Use the Law of Sines to find  $h$ .



#### Area of an Oblique Triangle

$$\text{Area} = \frac{1}{2}bc\sin A = \frac{1}{2}ab\sin C = \frac{1}{2}ac\sin B$$

**Example 6:** Find the area of a triangular lot having two sides of lengths 90 meters and 52 meters and an included angle of  $102^\circ$ .



**Practice Problem 2:** Find the area of a triangular lot with side lengths that measure 24 yards and 18 yards and form an angle of  $80^\circ$ .