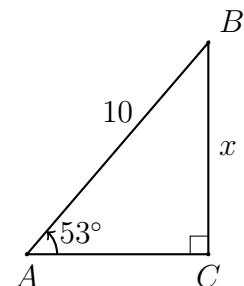


### 6.6 Pre-Quiz: Non-right triangle trigonometry

HSG.SRT.D.11

Round all values to three significant figures.

1. Do Now: Given right  $\triangle ABC$  with  $AB = 10$ ,  $m\angle A = 53^\circ$ . Find the value of  $BC = x$ .

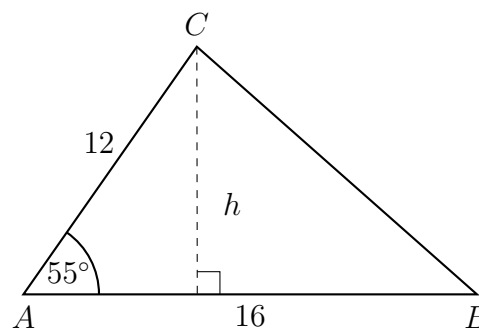


### Area of a triangle sine formula

HSG.SRT.D.9

2. Given  $\triangle ABC$  with  $AC = 12$  centimeters, base  $AB = 16$ , and  $\hat{A} = 55^\circ$ . (diagram not to scale)

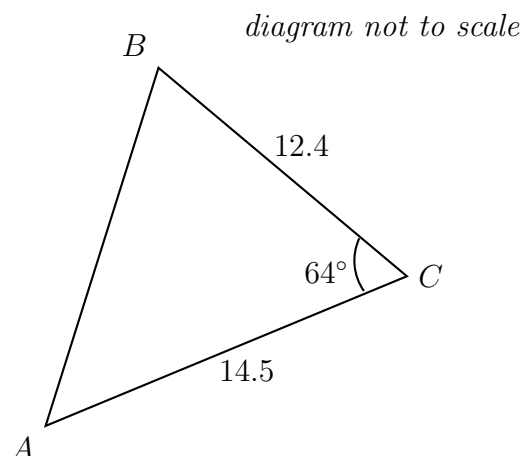
- (a) Find altitude  $h$  cm using  $\sin \hat{A} = \frac{h}{12}$ .



- (b) Find the area of the triangle

$$\text{Area} = \frac{1}{2}bh$$

3. Find the area of the given triangle. Triangle area using sine formula:  $A = \frac{1}{2}ab \sin C$



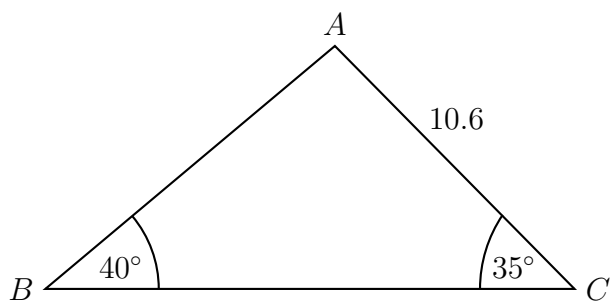
**The sine rule****HSG.SRT.D.11**

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

4. The following diagram shows triangle  $ABC$ , with  $\hat{A} = 40^\circ$ ,  $\hat{C} = 35^\circ$ , and  $AC = 10.6$  cm.

Find  $AB$ .

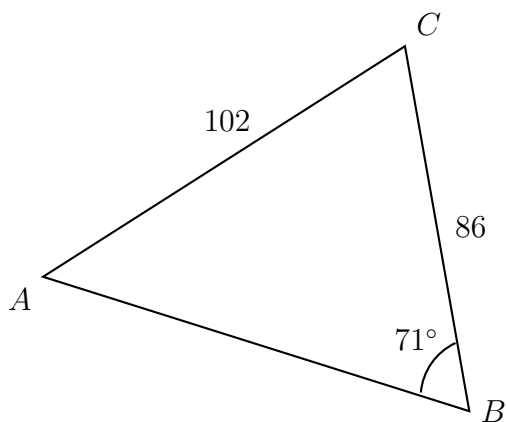
*diagram not to scale*



5. Triangle  $ABC$  is drawn with  $AC = 102$  cm,  $BC = 86$  cm, and  $\hat{B} = 71^\circ$ .

Find  $\hat{A}$ .

*diagram not to scale*



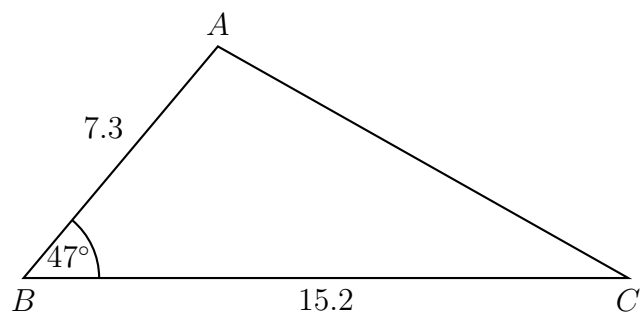
**The cosine rule****HSG.SRT.D.11**

$$c^2 = a^2 + b^2 - 2ab \cos C$$

6. As shown in the diagram, triangle  $ABC$  has  $\hat{A}BC = 47^\circ$ ,  $AB = 7.3$ , and  $BC = 15.2$ .

Find  $AC$ .

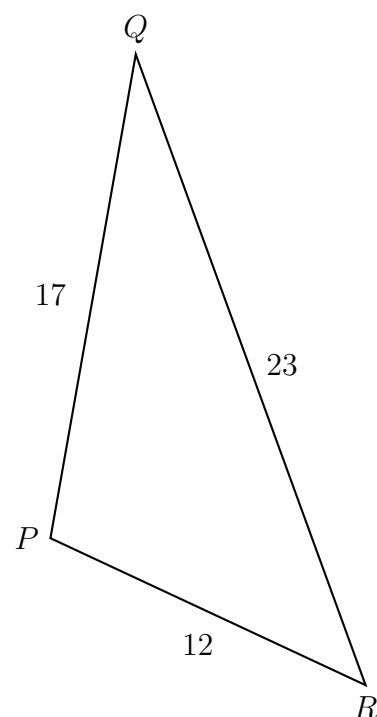
*diagram not to scale*



7. The following diagram shows triangle  $PQR$ . (*not to scale*)

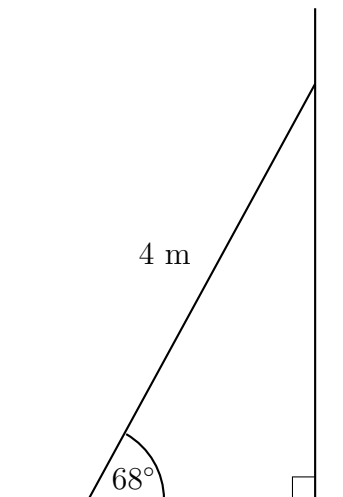
$PQ = 17$  meters,  $QR = 23$  m., and  $PR = 12$  m.

Find  $\hat{P}QR$ .



8. A ladder that is 4 meters long leans against a wall making an angle to the ground of  $68^\circ$ , as shown in the diagram. (not drawn to scale)

- (a) Find the height of the top of the ladder above the ground.

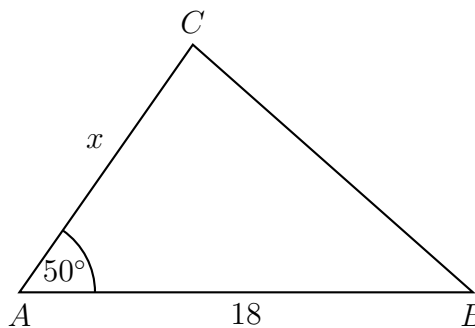


- (b) Find the distance of the bottom of the ladder to the base of the wall.

9. The following diagram shows a triangle  $ABC$ . (diagram not to scale)

The area of the triangle  $ABC$  is  $80 \text{ cm}^2$ ,  $AB = 18 \text{ cm}$ ,  $AC = x \text{ cm}$ , and  $\hat{BAC} = 50^\circ$ .

- (a) Find  $x$ .



- (b) Find  $BC$ .