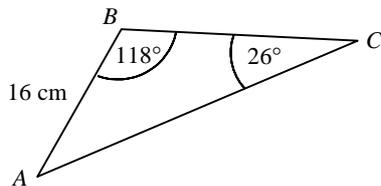


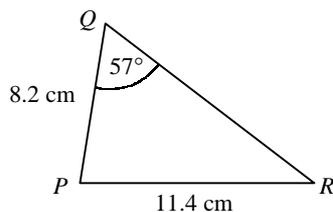
# TRIGONOMETRY

1



The diagram shows triangle  $ABC$  in which  $AB = 16$  cm,  $\angle ABC = 118^\circ$  and  $\angle ACB = 26^\circ$ . Use the sine rule to find the length  $AC$  to 3 significant figures.

2

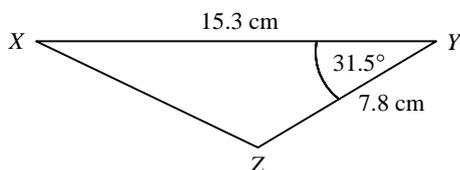


The diagram shows triangle  $PQR$  in which  $PQ = 8.2$  cm,  $PR = 11.4$  cm and  $\angle PQR = 57^\circ$ . Use the sine rule to find the size of  $\angle PRQ$  in degrees to 1 decimal place.

3

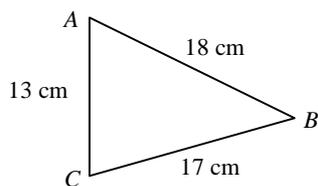
In triangle  $ABC$ ,  $AB = 16.2$  cm,  $BC = 12.3$  cm and  $\angle BAC = 37^\circ$ . Find the two possible sizes of  $\angle ACB$  and the corresponding lengths of  $AC$ .

4



The diagram shows triangle  $XYZ$  in which  $XY = 15.3$  cm,  $YZ = 7.8$  cm and  $\angle XYZ = 31.5^\circ$ . Use the cosine rule to find the length  $XZ$ .

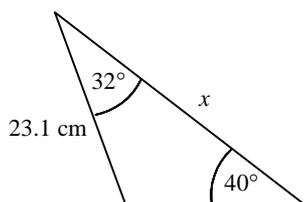
5



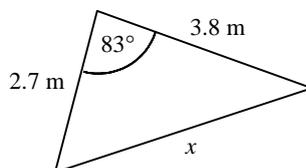
The diagram shows triangle  $ABC$  in which  $AB = 18$  cm,  $AC = 13$  cm and  $BC = 17$  cm. Use the cosine rule to find the size of  $\angle ACB$ .

6 Find the length  $x$  in each triangle.

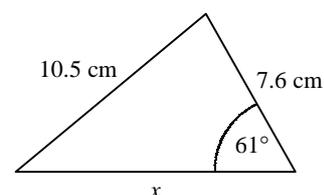
a



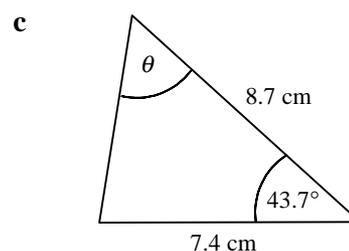
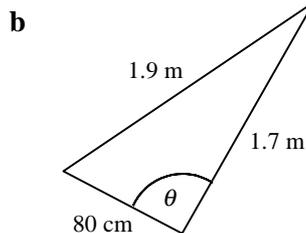
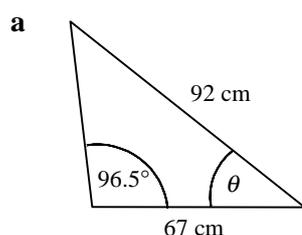
b



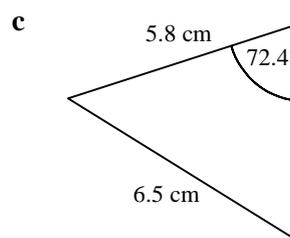
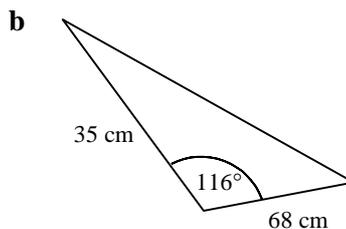
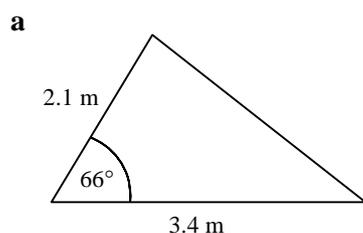
c



7 Find the angle  $\theta$  in each triangle.



8 Find the area of each of the following triangles.



9 Joanne walks 4.2 miles on a bearing of  $138^\circ$ . She then walks 7.8 miles on a bearing of  $251^\circ$ .

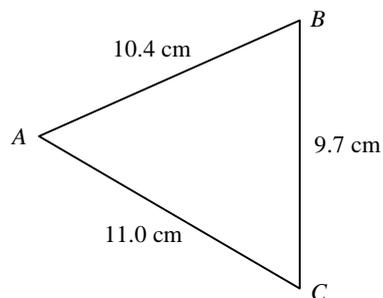
**a** Calculate how far Joanne is from the point where she started.

**b** Find, as a bearing, the direction in which Joanne would have to walk in order to return to the point where she started.

10 A ferry and a cargo ship are both approaching the same port. The ferry is 3.2 km from the port on a bearing of  $076^\circ$  and the cargo ship is 6.9 km from the port on a bearing of  $323^\circ$ .

Find the distance between the two vessels and the bearing of the cargo ship from the ferry.

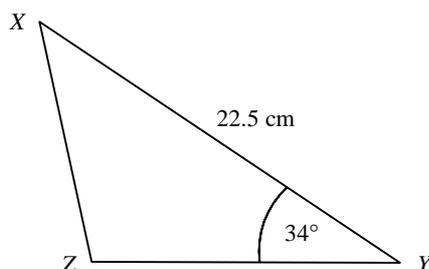
11



The diagram shows triangle  $ABC$  in which  $AB = 10.4$  cm,  $AC = 11.0$  cm and  $BC = 9.7$  cm.

Find the area of the triangle to 3 significant figures.

12



The diagram shows triangle  $XYZ$  in which  $XY = 22.5$  cm and  $\angle XYZ = 34^\circ$ .

Given that the area of the triangle is  $100$  cm<sup>2</sup>, find the length  $XZ$ .