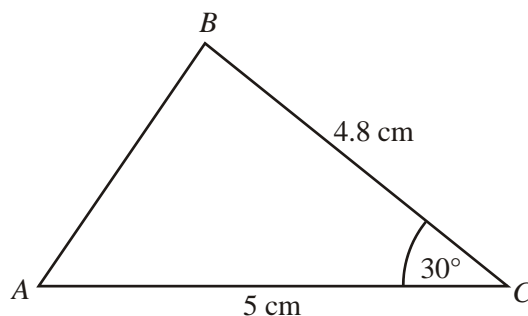


C2 Trigonometry Homework 1

Section A

1. The diagram shows a triangle ABC .



The lengths of AC and BC are 5 cm and 4.8 cm respectively.

The size of the angle BCA is 30° .

- (a) Calculate the area of the triangle ABC .

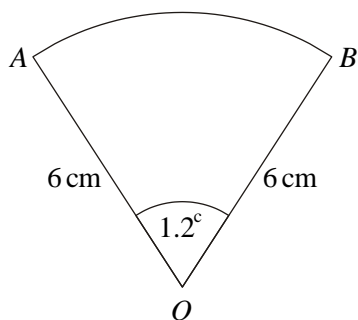
(2)

- (b) Calculate the length of AB , giving your answer to three significant figures.

(3)

(Total 5 marks)

2. The diagram shows a sector OAB of a circle with centre O .



The radius of the circle is 6 cm and the angle AOB is 1.2 radians.

- (a) Find the area of the sector OAB .

(2)

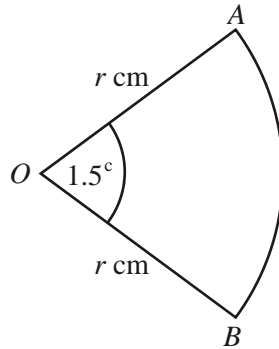
- (b) Find the perimeter of the sector OAB .

(3)

(Total 5 marks)

Section B

3. The diagram shows a sector OAB of a circle with centre O and radius r cm.



The angle AOB is 1.5 radians. The perimeter of the sector is 56 cm.

- (a) Show that $r = 16$.

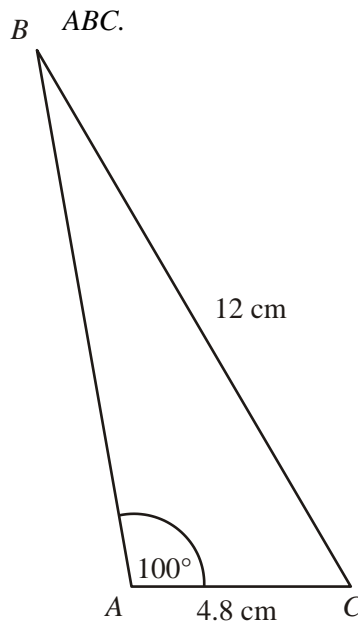
(3)

- (b) Find the area of the sector.

(2)

(Total 5 marks)

4. The diagram shows a triangle ABC .



The lengths of AC and BC are 4.8 cm and 12 cm respectively.

The size of the angle BAC is 100° .

- (a) Show that angle $ABC = 23.2^\circ$, correct to the nearest 0.1° .

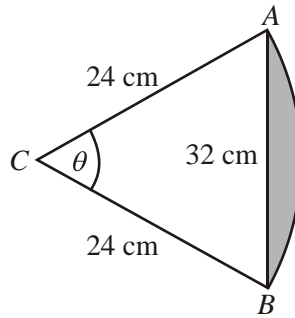
(3)

- (b) Calculate the area of triangle ABC , giving your answer in cm^2 to three significant figures.

(3)

(Total 5 marks)

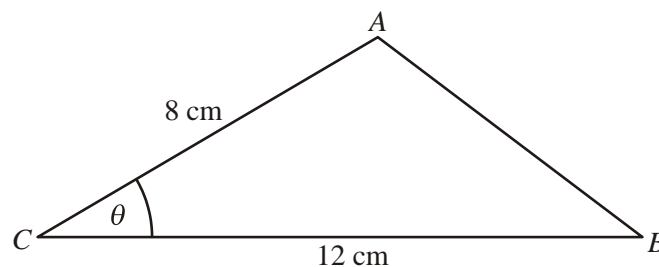
5. The diagram shows a triangle ABC and the arc AB of a circle whose centre is C and whose radius is 24 cm.



The length of the side AB of the triangle is 32 cm. The size of the angle ACB is θ radians.

- (a) Show that $\theta = 1.46$ correct to three significant figures. (3)
- (b) Calculate the length of the arc AB to the nearest cm. (2)
- (c) (i) Calculate the area of the sector ABC to the nearest cm^2 . (2)
- (ii) Hence calculate the area of the shaded segment to the nearest cm^2 . (3)
- (Total 10 marks)**

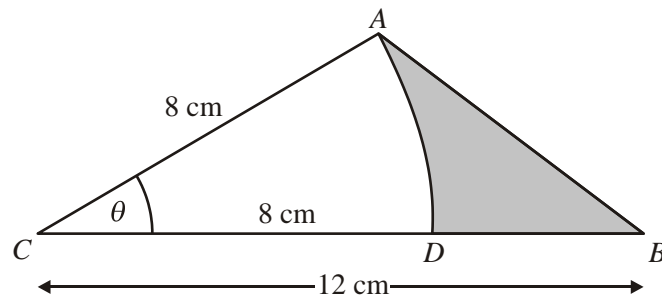
6. The triangle ABC , shown in the diagram, is such that $AC = 8$ cm, $CB = 12$ cm and angle $ACB = \theta$ radians.



The area of triangle $ABC = 20 \text{ cm}^2$.

- (a) Show that $\theta = 0.430$ correct to three significant figures. (3)
- (b) Use the cosine rule to calculate the length of AB , giving your answer to two significant figures. (3)

- (c) The point D lies on CB such that AD is an arc of a circle centre C and radius 8 cm. The region bounded by the arc AD and the straight lines DB and AB is shaded in the diagram.



Calculate, to two significant figures:

- (i) the length of the arc AD ;

(2)

- (ii) the area of the shaded region.

(3)

(Total 11 marks)