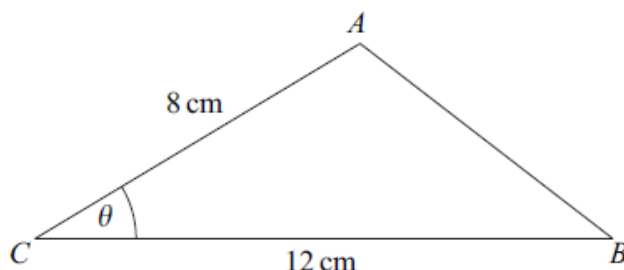


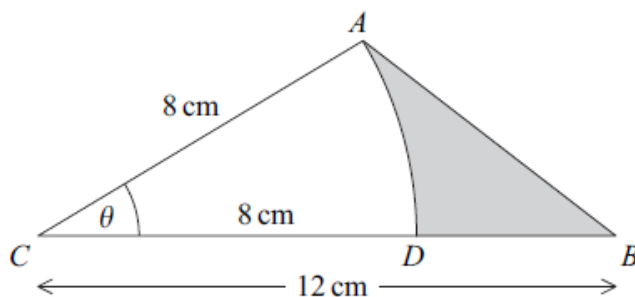
Core 2 Trigonometry Questions

- 4 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 $ABC = 20$ cm².

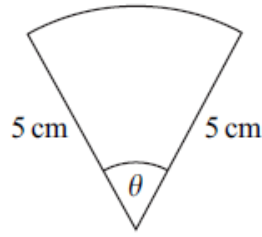
- (a) Show that $\theta = 0.430$ correct to three significant figures. (3 marks)
- (b) Use the cosine rule to calculate the length of AB , giving your answer to two significant figures. (3 marks)
- (c) The point D lies on CB such that AD is an arc of a circle centre C and radius 8 cm. The region bounded 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 marks)
- (ii) the area of the shaded region. (3 marks)
-

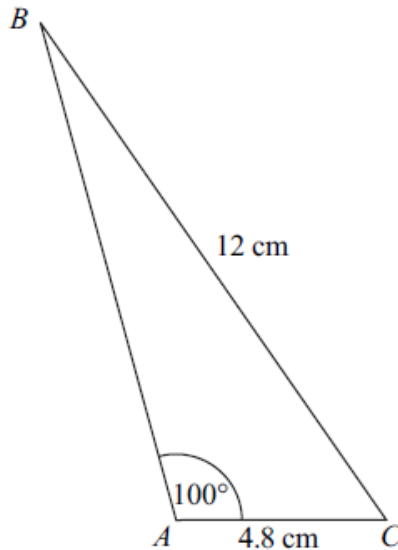
- 1 The diagram shows a sector of a circle of radius 5 cm and angle θ radians.



The area of the sector is 8.1 cm^2 .

- (a) Show that $\theta = 0.648$. (2 marks)
- (b) Find the perimeter of the sector. (3 marks)
-

- 2 The diagram shows a triangle ABC .

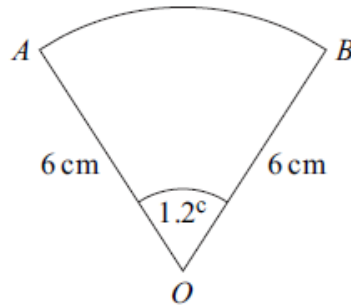


The lengths of AC and BC are 4.8 cm and 12 cm respectively.

The size of the angle BAC is 100° .

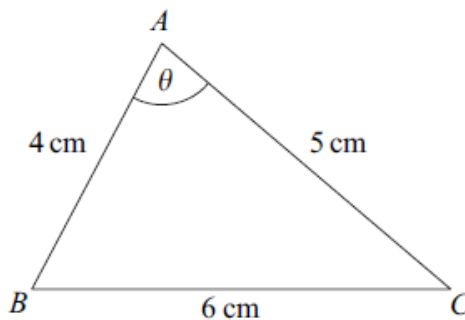
- (a) Show that angle $ABC = 23.2^\circ$, correct to the nearest 0.1° . (3 marks)
- (b) Calculate the area of triangle ABC , giving your answer in cm^2 to three significant figures. (3 marks)
-

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



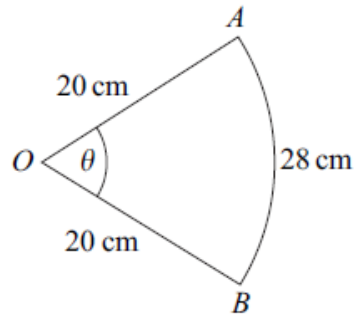
The radius of the circle is 6 cm and the angle AOB is 1.2 radians.

- (a) Find the area of the sector OAB . (2 marks)
- (b) Find the perimeter of the sector OAB . (3 marks)
-
- 4 The triangle ABC , shown in the diagram, is such that $BC = 6\text{ cm}$, $AC = 5\text{ cm}$ and $AB = 4\text{ cm}$. The angle BAC is θ .



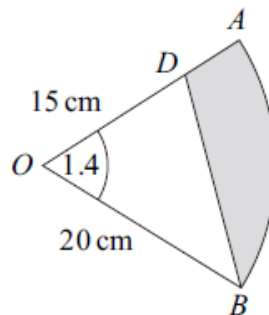
- (a) Use the cosine rule to show that $\cos \theta = \frac{1}{8}$. (3 marks)
- (b) Hence use a trigonometrical identity to show that $\sin \theta = \frac{3\sqrt{7}}{8}$. (3 marks)
- (c) Hence find the area of the triangle ABC . (2 marks)
-

- 3 The diagram shows a sector OAB of a circle with centre O and radius 20 cm. The angle between the radii OA and OB is θ radians.



The length of the arc AB is 28 cm.

- (a) Show that $\theta = 1.4$. (2 marks)
- (b) Find the area of the sector OAB . (2 marks)
- (c) The point D lies on OA . The region bounded by the line BD , the line DA and the arc AB is shaded.



The length of OD is 15 cm.

- (i) Find the area of the shaded region, giving your answer to three significant figures. (3 marks)
- (ii) Use the cosine rule to calculate the length of BD , giving your answer to three significant figures. (3 marks)