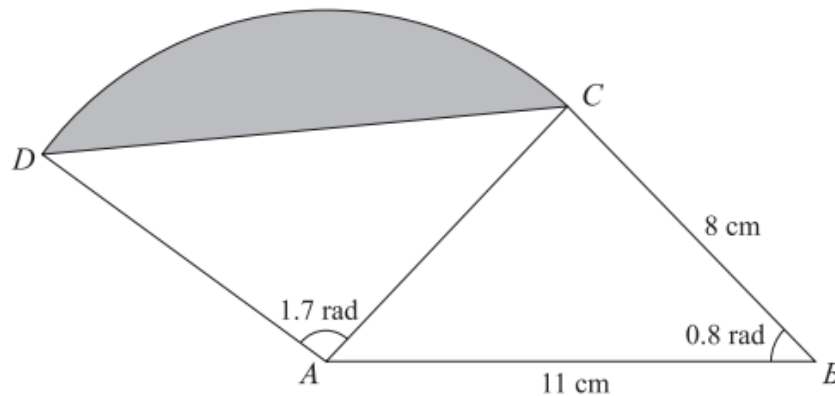




Radians, Circle Sectors and Triangles Exam Questions (From OCR 4722)

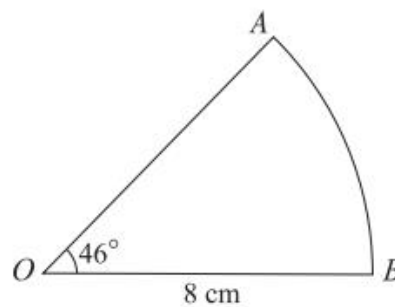
Q1, (Jun 2006, Q7)



The diagram shows a triangle ABC , and a sector ACD of a circle with centre A . It is given that $AB = 11$ cm, $BC = 8$ cm, angle $ABC = 0.8$ radians and angle $DAC = 1.7$ radians. The shaded segment is bounded by the line DC and the arc DC .

- (i) Show that the length of AC is 7.90 cm, correct to 3 significant figures. [3]
- (ii) Find the area of the shaded segment. [3]
- (iii) Find the perimeter of the shaded segment. [4]

Q2, (Jan 2007, Q2)

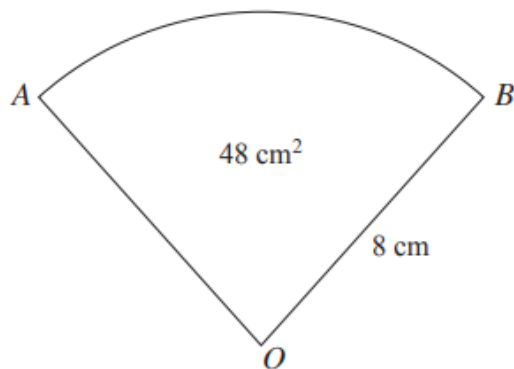


The diagram shows a sector OAB of a circle, centre O and radius 8 cm. The angle AOB is 46° .

- (i) Express 46° in radians, correct to 3 significant figures. [2]
- (ii) Find the length of the arc AB . [1]
- (iii) Find the area of the sector OAB . [2]



Q3, (Jun 2008, Q3)

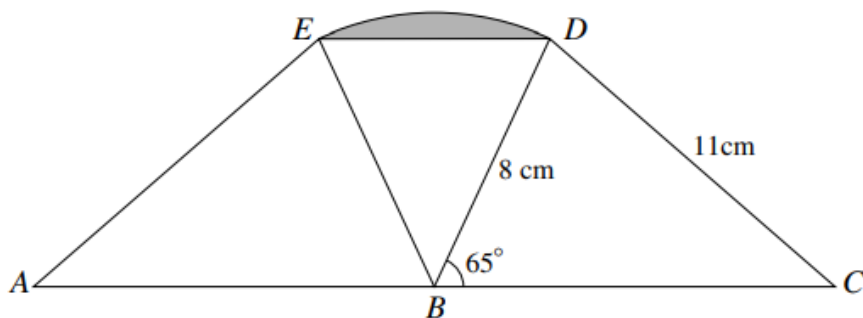


The diagram shows a sector AOB of a circle with centre O and radius 8 cm . The area of the sector is 48 cm^2 .

(i) Find angle AOB , giving your answer in radians. [2]

(ii) Find the area of the segment bounded by the arc AB and the chord AB . [3]

Q4, (Jun 2010, Q5)



The diagram shows two congruent triangles, BCD and BAE , where ABC is a straight line. In triangle BCD , $BD = 8\text{ cm}$, $CD = 11\text{ cm}$ and angle $CBD = 65^\circ$. The points E and D are joined by an arc of a circle with centre B and radius 8 cm .

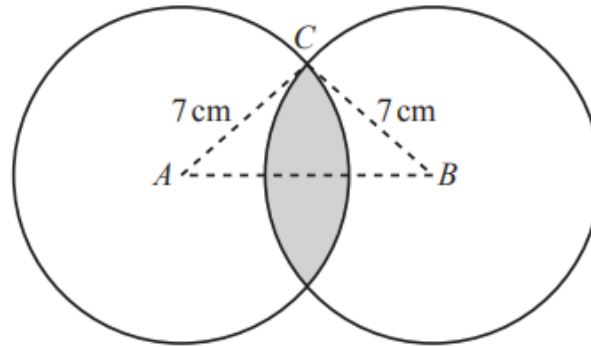
(i) Find angle BCD . [2]

(ii) (a) Show that angle EBD is 0.873 radians, correct to 3 significant figures. [2]

(b) Hence find the area of the shaded segment bounded by the chord ED and the arc ED , giving your answer correct to 3 significant figures. [4]



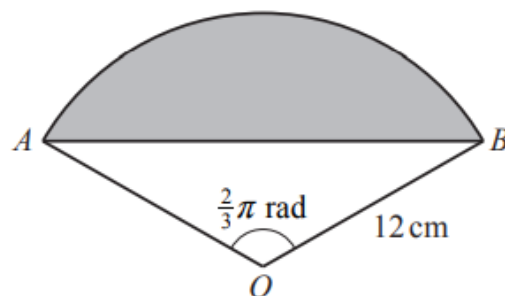
Q5, (Jan 2013, Q7)



The diagram shows two circles of radius 7 cm with centres A and B . The distance AB is 12 cm and the point C lies on both circles. The region common to both circles is shaded.

- (i) Show that angle CAB is 0.5411 radians, correct to 4 significant figures. [2]
- (ii) Find the perimeter of the shaded region. [2]
- (iii) Find the area of the shaded region. [5]
-

Q6, (Jun 2014, Q3)

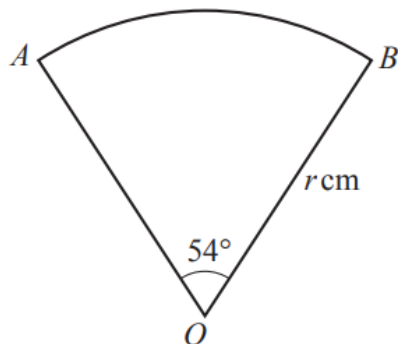


The diagram shows a sector OAB of a circle, centre O and radius 12 cm. The angle AOB is $\frac{2}{3}\pi$ radians.

- (i) Find the exact length of the arc AB . [2]
- (ii) Find the exact area of the shaded segment enclosed by the arc AB and the chord AB . [5]
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Q7, (Jun 2016, Q2)



The diagram shows a sector AOB of a circle with centre O and radius r cm. The angle AOB is 54° . The perimeter of the sector is 60 cm.

(i) Express 54° exactly in radians, simplifying your answer. [2]

(ii) Find the value of r , giving your answer correct to 3 significant figures. [3]
