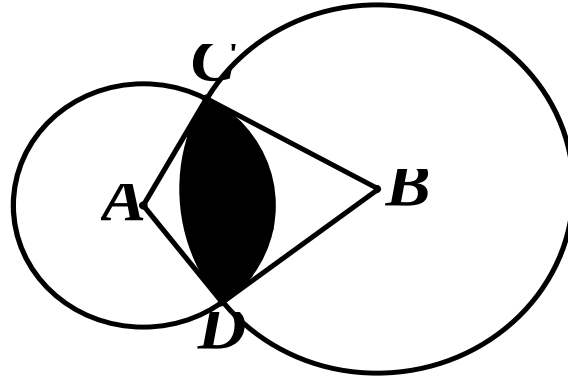


Topical Revision Paper 13

Term 3 Unit 13: Circular Measure

Question 1:

The diagram shows two circles with centres A and B , intersecting at points C and D . The radii of the circles are 8 cm and 12 cm respectively, and angle $ACB = \text{angle } ADB = \frac{\pi}{2}$ radians.



- (i) Show that angle CBD is approximately 1.18 radians. [2]

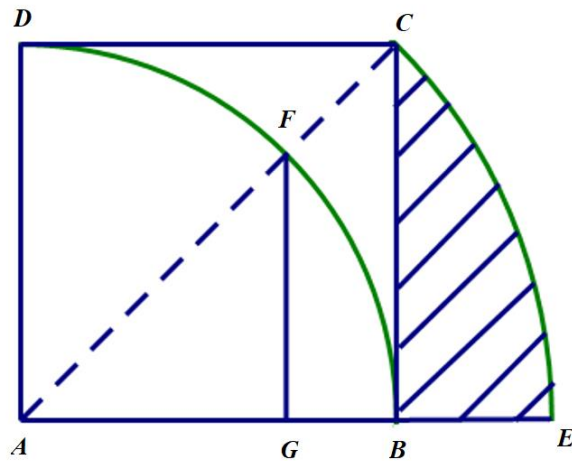
The shaded region is bounded by minor arcs CD with centres A and B respectively.

- (ii) Find the perimeter of the shaded region. [3]
(iii) Find the area of the shaded region. [3]

Answer: (ii) 29.9 cm (iii) 51.6 cm²

Question 2:

The diagram shows a quadrant inscribed in the square $ABCD$ of sides 6 cm. ACE is a sector centred at A . F is the point of intersection of the diagonal AC and the arc DB . FG is perpendicular to AE .



Find

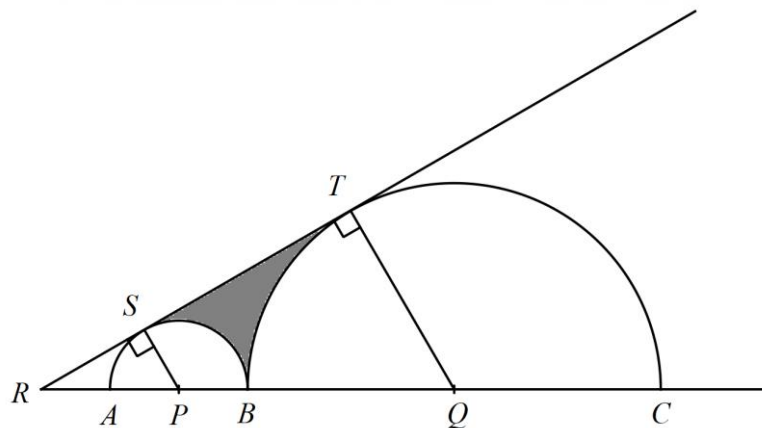
(i) the area of the shaded region BCE , [3]

(ii) the perimeter of $FGECF$. [4]

Answer : (i) 10.3 cm^2 (ii) 17.6 cm

Question 3:

The diagram below shows a tangent RST to two semi-circles with centre P and Q . The point R , A , P , B , Q and C lie on the same straight line. It is also given that $AB = 2 \text{ cm}$ and $AC = 8 \text{ cm}$.



(i) Show that $RA = 1 \text{ cm}$. [2]

(ii) Find $\angle QRT$ in radian. [2]

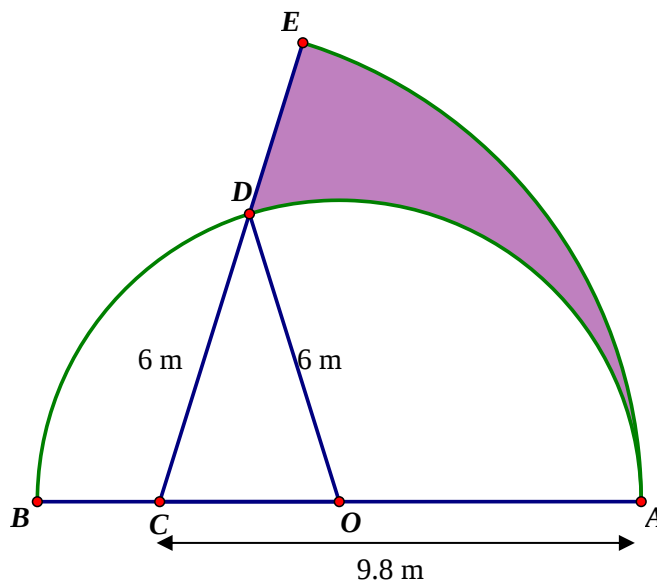
(iii) Calculate the perimeter of the shaded region. [4]

(iv) Calculate the area of the shaded region. [4]

Answer : (ii) $\frac{\pi}{6}$ (iii) 8.70 cm (iv) 1.17 cm²

Question 4:

The diagram below shows a semicircle ADB with centre O and a radius of 6 m. ACE is a sector of a circle with centre C and a radius of 9.8 m. CE intersects the semicircle at D such that CD is 6 m.



(i) Show that $\angle AOD = 1.89$ radians. [2]

(ii) Calculate the area of the shaded region. [4]

Answer: (ii) 15.1 m²