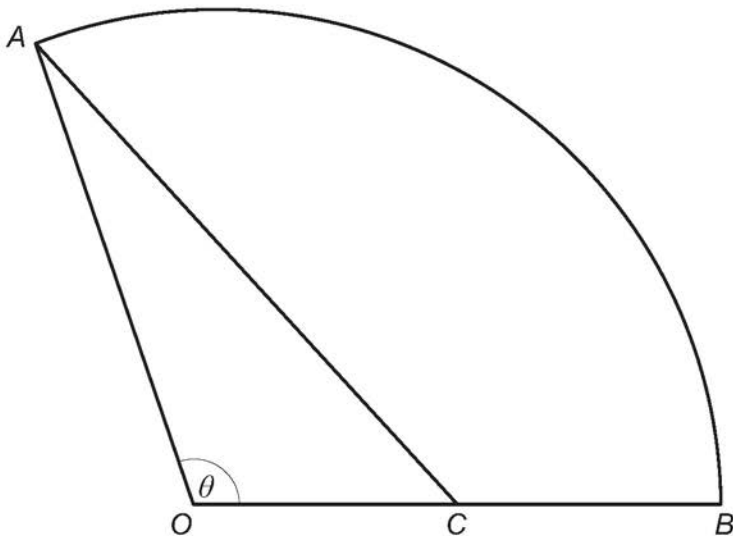


8 The diagram shows a sector of a circle OAB .

C is the midpoint of OB .

Angle AOB is θ radians.



8 (a) Given that the area of the triangle OAC is equal to one quarter of the area of the sector OAB , show that $\theta = 2 \sin \theta$

[4 marks]

8 (b) Use the Newton-Raphson method with $\theta_1 = \pi$, to find θ_3 as an approximation for θ . Give your answer correct to five decimal places.

[3 marks]

8 (c) Given that $\theta = 1.89549$ to five decimal places, find an estimate for the percentage error in the approximation found in part (b).

[1 mark]