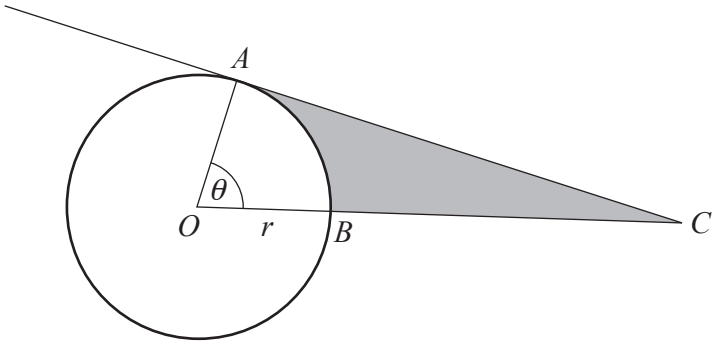
4 In this question all lengths are in centimetres and all angles are in radians.



The diagram shows a circle with centre O and radius r. The points A and B lie on the circumference of the circle such that the angle AOB is θ and the length of the minor arc AB is 12. The area of the minor sector AOB is $57.6\,\text{cm}^2$. The point C lies on the tangent to the circle at A such that OBC is a straight line.

(a) Find the values of r and θ. [4]

(b) Find the area of the shaded region. Give your answer correct to 1 decimal place. [3]

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