



The diagram shows a sector CAB which is part of a circle with centre C . A circle with centre O and radius r lies within the sector and touches it at D , E and F , where COD is a straight line and angle ACD is θ radians.

- (a) Find CD in terms of r and $\sin \theta$.

[3]

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

It is now given that $r = 4$ and $\theta = \frac{1}{6}\pi$.

- (b) Find the perimeter of sector CAB in terms of π . [3]

This image shows a full page of white paper with ten horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and extend across the entire width of the page. There is no text or other markings on the paper.

- (c) Find the area of the shaded region in terms of π and $\sqrt{3}$. [4]

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