



In the diagram, AOB is a quarter circle with centre O and radius r . The point C lies on the arc AB and the point D lies on OB . The line CD is parallel to AO and angle $AOC = \theta$ radians.

(i) Express the perimeter of the shaded region in terms of r , θ and π . [4]

(ii) For the case where $r = 5$ cm and $\theta = 0.6$, find the area of the shaded region. [3]