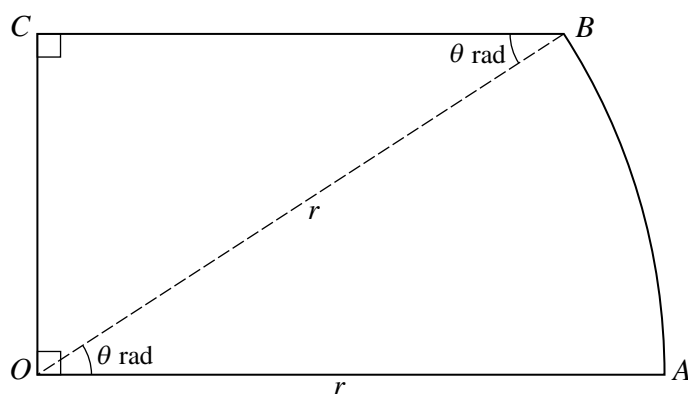


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The diagram represents a metal plate $OABC$, consisting of a sector OAB of a circle with centre O and radius r , together with a triangle OCB which is right-angled at C . Angle $AOB = \theta$ radians and OC is perpendicular to OA .

(i) Find an expression in terms of r and θ for the perimeter of the plate. [3]

(ii) For the case where $r = 10$ and $\theta = \frac{1}{5}\pi$, find the area of the plate. [3]