



The diagram shows a sector  $OAC$  of a circle with centre  $O$ . Tangents  $AB$  and  $CB$  to the circle meet at  $B$ . The arc  $AC$  is of length 6 cm and angle  $AOC = \frac{3}{8}\pi$  radians.

- (i) Find the length of  $OA$  correct to 4 significant figures. [2]

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- (ii) Find the perimeter of the shaded region. [2]

[illegible]

(iii) Find the area of the shaded region. [4]

[4]