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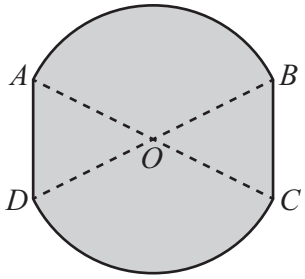
1 The line $y = 4x - 3$ meets the curve $y = 3 + 5x - 2x^2$ at the points A and B.

(a) Find the coordinates of A and B. [4]

(b) The perpendicular bisector of the line AB cuts the coordinate axes at the points P and Q.

Given that O is the origin, find the area of the triangle POQ. [5]

2



The diagram shows the shaded region $ABCD$.
The lines AC and BD each have a length of 12 cm.
The lines AC and BD bisect each other at the point O.
The lines AD and BC are parallel and each have a length of 4 cm.
The arcs AB and DC are part of a circle centre O.

(a) Find the obtuse angle AOB.
Give your answer in radians. [3]

Use your answer to **part (a)** to find

(b) (i) the perimeter of the shaded region [2]

(ii) the area of the shaded region. [3]

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