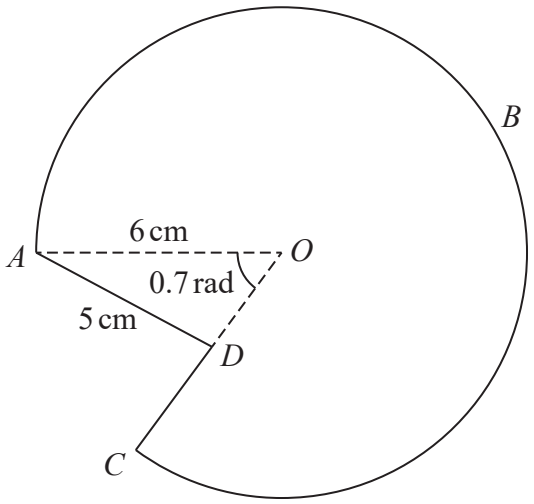
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Not to scale

Figure 2

The shape *ABCDA* consists of a sector *ABCOA* of a circle, centre *O*, joined to a triangle *AOD*, as shown in Figure 2.

The point *D* lies on *OC*.

The radius of the circle is 6 cm, length *AD* is 5 cm and angle *AOD* is 0.7 radians.

(a) Find the area of the sector *ABCOA*, giving your answer to one decimal place.

(3)

Given angle *ADO* is obtuse,

(b) find the size of angle *ADO*, giving your answer to 3 decimal places.

(3)

(c) Hence find the perimeter of shape *ABCDA*, giving your answer to one decimal place.

(4)

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Question 7 continued

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8. The curve C with equation $y = f(x), \quad x > 0,$ passes through the point $P(4, 1)$.

Given that $f'(x) = 4\sqrt{x} - 2 - \dfrac{8}{3x^2}$

(a) find the equation of the normal to C at P. Write your answer in the form $ax + by + c = 0,$ where a, b and c are integers to be found.

(4)

(b) Find $f(x)$.

(5)

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