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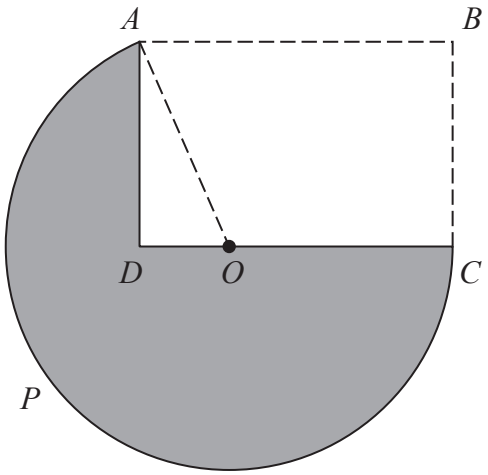

Not to scale

Figure 2

Figure 2 shows the plan view of a house *ABCD* and a lawn *APCDA*.

ABCD is a rectangle with $AB = 16\,\text{m}$.

APCOA is a sector of a circle centre *O* with radius 12 m.

The point *O* lies on the line *DC*, as shown in Figure 2.

(a) Show that the size of angle *AOD* is 1.231 radians to 3 decimal places.

(2)

The lawn *APCDA* is shown shaded in Figure 2.

(b) Find the area of the lawn, in m^2, to one decimal place.

(4)

(c) Find the perimeter of the lawn, in metres, to one decimal place.

(3)

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Question 4 continued

Q4

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5. (a) Find, using algebra, all solutions of

$$20x^3 - 50x^2 - 30x = 0$$

(3)

(b) Hence find all real solutions of

$$20(y + 3)^{\frac{3}{2}} - 50(y + 3) - 30(y + 3)^{\frac{1}{2}} = 0$$

(4)

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