4. **In this question you must show all stages of your working.**

(a) Write

$$y = \frac{5x^2 + \sqrt{x^3}}{\sqrt[3]{8x}}$$

in the form

$$y = Ax^p + Bx^q$$

where A, B, p and q are constants to be found.

(4)

(b) Hence find $\frac{dy}{dx}$ giving each coefficient in simplest form.

(3)

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Question 4 continued

(Total for Question 4 is 7 marks)

5.

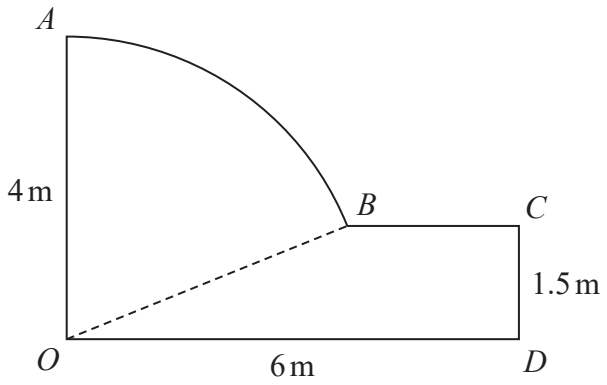

Figure 1

Figure 1 shows the plan for a garden.

In the plan

- *OA* and *CD* are perpendicular to *OD*
- *AB* is an arc of the circle with centre *O* and radius 4 metres
- *BC* is parallel to *OD*
- *OD* is 6 metres, *OA* is 4 metres and *CD* is 1.5 metres

(a) Show that angle *AOB* is 1.186 radians to 4 significant figures.

(2)

(b) Find the perimeter of the garden, giving your answer in metres to 3 significant figures.

(4)

(c) Find the area of the garden, giving your answer in square metres to 3 significant figures.

(4)

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