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1.

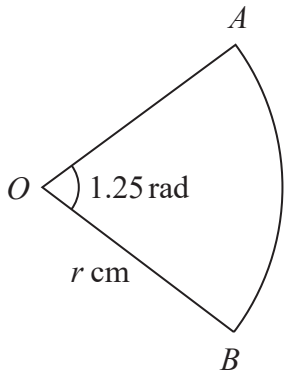

Figure 1

Figure 1 shows a sector AOB of a circle with centre O and radius r cm.

The angle AOB is 1.25 radians.

Given that the area of the sector AOB is 15 cm^2

(a) find the exact value of r,

(2)

(b) find the exact length of the perimeter of the sector. Write your answer in simplest form.

(3)

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Question 1 continued

Q1

(Total 5 marks)

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2. A tree was planted in the ground.

Exactly 2 years after it was planted, the height of the tree was 1.85 m.

Exactly 7 years after it was planted, the height of the tree was 3.45 m.

Given that the height, H metres, of the tree, t years after it was planted in the ground, can be modelled by the equation

$$H = at + b$$

where a and b are constants,

(a) find the value of a and the value of b.

(4)

(b) State, according to the model, the height of the tree when it was planted.

(1)

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