5.17 Sector Areas and Arc Lengths: 10-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

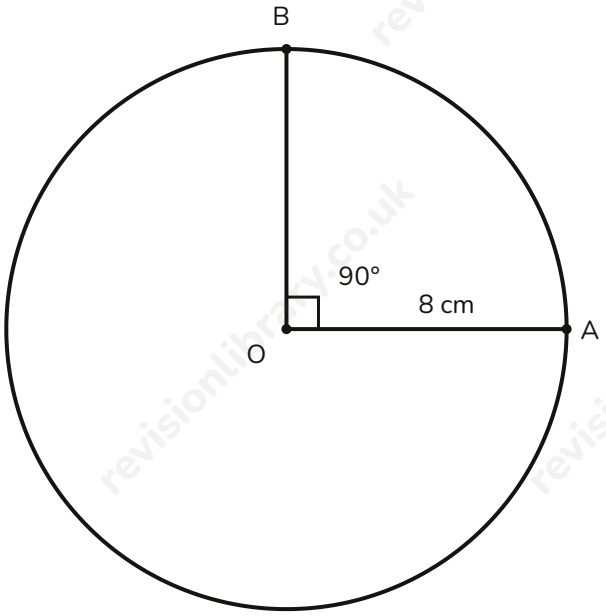
1 A circle has radius 5 cm. Find the area of the whole circle. Give your answer correct to 1 decimal place. Use $\pi = 3.14159$.

(Total for Question 1 is 2 marks)

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2 A sector of a circle has centre O and radius 8 cm. The angle at the centre, angle AOB, is 90 degrees. Calculate the length of arc AB, giving your answer to 3 significant figures.

Diagram NOT accurately drawn



(Total for Question 2 is 2 marks)

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3 This question tests recall of the sector formulae. In each formula, r is the radius of the circle and θ is the angle at the centre, in degrees.

(a) Write down the formula for the arc length of a sector. **(1)**

.....

(b) Write down the formula for the area of a sector. **(1)**

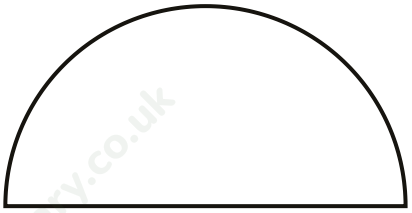
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(Total for Question 3 is 2 marks)

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4 A semicircular lawn has a diameter of 12 m. Calculate the perimeter of the lawn, giving your answer to 3 significant figures.

Diagram NOT accurately drawn



(Total for Question 4 is 3 marks)

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Mark scheme · 5.17 Sector Areas and Arc Lengths: 10-minute Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

use area = $\pi * r^2$ with r = 5	**M1**
78.5 cm^2 cao (78.53975... rounded to 78.5)	**A1**

Answer: 78.5 cm^2

Question 2

(90/360) x 2 x π x 8 oe, or 2 x π x 8 = 50.2... seen	**M1**
awrt 12.6 (cm)	**A1**

Answer: 12.6 cm

Question 3

(a) arc length = (θ/360) x 2 x π x r oe, e.g. (θ/360) x π x d	**B1**

(a) Answer: Arc length = (θ / 360) x 2 x π x r

(b) area = (θ/360) x π x r^2 oe	**B1**

(b) Answer: Area = (θ / 360) x π x r^2

Question 4

π x 6 oe (half the circumference of a circle of radius 6 m)	**M1**
their arc length + 12 (adds the diameter to complete the perimeter)	**M1**
awrt 30.8 (m)	**A1**

Answer: 30.8 m

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