FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

G18: Arcs and sectors

Solve problems involving arcs, sectors and segments

20 marks · 25 minutes · Calculator allowed

1) A pizza of radius 15 cm is cut into 8 equal slices. Find the arc length and the area of one slice.

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[Question 1: 3 marks]

2) A sector has radius 8 cm and perimeter 30 cm. Find its angle.

..... °

[Question 2: 3 marks]

3) A fan shape is a sector of radius 10 cm and angle 120° with a sector of radius 4 cm and the same angle cut from its centre. Find its area.

..... cm^2

[Question 3: 3 marks]

4) A 50 cm pendulum swings through an angle of 40°. How far does its tip travel in one swing?

..... cm

[Question 4: 2 marks]

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5) Find the area of the segment cut off by a chord that makes an angle of 60° at the centre of a circle of radius 6 cm.

..... cm^2

[Question 5: 4 marks]

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6) A sector of radius 10 cm and angle 216° is folded to make a cone. Find the radius and height of the cone.

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[Question 6: 3 marks]

7) A clock's minute hand is 12 cm long. How far does its tip move in 20 minutes?

..... cm

[Question 7: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	11.8 cm; 88.4 cm^2	$\frac{1}{8} \times 30\pi$ (P1); A1; $\frac{1}{8} \times 225\pi$ (A1).
2	100.3	Arc 14 (P1); $\frac{14}{16\pi} \times 360$ (P1); A1.
3	88.0	$\frac{1}{3}(100\pi - 16\pi)$ (P1, P1); A1.
4	34.9	$\frac{40}{360} \times 100\pi$ (P1); A1.
5	3.26	Sector 6π (P1); triangle $9\sqrt{3}$ (P1, P1); A1.
6	6 cm; 8 cm	Arc 12π (P1); radius 6 (A1); $\sqrt{100 - 36}$ (A1).
7	25.1	$\frac{1}{3} \times 24\pi$ (P1); A1.