FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

G9: Circle properties

Solve problems using circle definitions and properties

20 marks · 25 minutes · Calculator allowed

1) A chord of length 24 cm is in a circle of radius 13 cm. How far is the chord from the centre?

..... cm

[Question 1: 2 marks]

2) A circle of radius 17 cm has two parallel chords of lengths 16 cm and 30 cm. Find the distance between the chords when they are on the same side of the centre, and when they are on opposite sides.

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[Question 2: 4 marks]

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3) A point is 25 cm from the centre of a circle of radius 7 cm. Find the length of a tangent from the point.

..... cm

[Question 3: 2 marks]

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4) A chord of a circle of radius 10 cm is 10 cm long. Find the angle it makes at the centre.

..... °

[Question 4: 3 marks]

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5) Tangents from T touch a circle with centre O and radius 5 cm at A and B. OT = 13 cm. Find the area of the kite $OATB$.

..... cm^2

[Question 5: 3 marks]

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6) Find the exact area of a semicircle with diameter 10 cm.

..... cm^2

[Question 6: 2 marks]

7) A 6 cm by 8 cm rectangle has all four corners on a circle. Find the exact area of the circle.

..... cm^2

[Question 7: 2 marks]

8) A wheel has a radius of 35 cm. How many complete turns does it make in 1 km?

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[Question 8: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	5	Half chord 12 (P1); $\sqrt{169 - 144}$ (A1).
2	7 cm; 23 cm	Distances 15 and 8 (P1, P1); $15 - 8$ (A1); $15 + 8$ (A1).
3	24	Right angle (P1); $\sqrt{625 - 49}$ (A1).
4	60	Triangle with three sides 10 is equilateral (P1, P1); A1.
5	60	$AT = 12$ (P1); $2 \times \frac{1}{2} \times 5 \times 12$ (P1); A1.
6	12.5π	$\frac{1}{2}\pi \times 25$ (P1); A1.
7	25π	Diagonal is a diameter, 10 (P1); A1.
8	454	Circumference 70π cm (P1); $100\,000 \div 219.9 = 454.7$ (A1).