FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

G9: Parts of a circle

Reason about circle definitions and properties

20 marks · 25 minutes · Non-calculator

1) Explain the difference between a chord and a diameter.

.....

.....

[Question 1: 2 marks]

2) Explain why a diameter is the longest chord of a circle.

.....

.....

[Question 2: 2 marks]

3) Explain the difference between a sector and a segment.

.....

.....

[Question 3: 2 marks]

4) Kim says a circle with radius 6 cm has diameter 3 cm. Explain her mistake.

.....

[Question 4: 1 marks]

5) Explain what makes a line a tangent to a circle.

.....

[Question 5: 1 marks]

6) A chord of length 16 cm is in a circle of radius 10 cm. Show that it is 6 cm from the centre.

[Question 6: 2 marks]

7) Explain why two radii and a chord always form an isosceles triangle.

.....

.....

[Question 7: 2 marks]

8) Prove that the two tangents from a point outside a circle are equal in length.

.....

.....

.....

[Question 8: 3 marks]

9) Is an arc a straight line? Explain.

.....

[Question 9: 1 marks]

10) Point P is 10 cm from the centre of a circle of radius 6 cm. Show that a tangent from P has length 8 cm.

[Question 10: 2 marks]

11) Explain why a semicircle is a special kind of sector.

.....

.....

[Question 11: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	Explanation	A diameter is a chord through the centre (C2).
2	Explanation	Any other chord is shorter than two radii (triangle inequality) (C2).
3	Explanation	Sector between two radii (C1); segment between a chord and an arc (C1).
4	12 cm	Diameter is twice the radius (C1).
5	Explanation	It touches the circle at exactly one point (C1).
6	Shown	Half chord 8 (M1); $\sqrt{100 - 64}$ (C1).
7	Explanation	Both radii are equal sides (C2).
8	Proof	Right angles at tangent points (M1); common hypotenuse and equal radii, RHS (M1); C1.
9	No	It is part of the circumference (C1).
10	Shown	Right angle at tangent point (M1); $\sqrt{100 - 36}$ (C1).
11	Explanation	Sector with angle 180° (C2).