GRADE 11 · EUCLIDEAN GEOMETRY

Circle Geometry Riders: Proofs, Converses & Method (Grade 11)

WORKSHEET

Name: ..... Class: .....

Date: .....

MARK ____ / 30

Answer all questions. Show all your working — marks are awarded for method as well as the final answer.

1 State the axiom about a tangent and a radius that all of circle geometry is built on. (2)

2 O is the centre and $A\hat{P}B = 28°$, with A, B and P on the circle. Determine $A\hat{O}B$, with a reason. (2)

3 In cyclic quadrilateral ABCD, $\hat{A} = 118°$. Determine $\hat{C}$, and state the theorem you used. (3)

4 In quadrilateral KLMN, $\hat{K} = 96°$ and $\hat{M} = 84°$. Prove that KLMN is cyclic. (3)

5 O is the centre of a circle of radius 17 cm. A chord PQ is 30 cm long and M is its midpoint. Determine OM. **(4)**

6 TA is a tangent at A and AB is a chord. The tangent–chord angle $\text{TÂB} = 52°$. Write down the size of the angle in the alternate segment, with a reason, and then determine OÂB. **(3)**

7 Explain why you may NOT quote "opp ∠s of a cyclic quad" as a reason inside a proof that a quadrilateral IS cyclic. **(3)**

8 In $\triangle$OMA, O is the centre, OA is a radius and OM $\perp$ AB where AB is a chord. Prove that AM = MB. **(4)**

9 State the converse of the tangent–chord theorem and say what it is used to prove. **(3)**

10 O is the centre and $A\hat{O}B = 96°$. OA and OB are radii. Determine $O\hat{A}B$, with reasons. **(3)**

TOTAL: 30 marks

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