Geometry and proof - Practice test 1

Name: _____ Date: _____

16 questions | 33 marks | 55 minutes

Build angle, triangle and circle reasoning with justified steps.

A scientific calculator may be used.

1. Two angles on a straight line are 68° and x°. Find x. [1 mark]

2. Triangle angles are $48^\circ, 73^\circ$ and x°. Find x. [1 mark]

3. Two parallel lines give a corresponding angle of 61°. Find its partner. [1 mark]

4. Congruent triangles have corresponding sides 7 cm and x cm. Find x. [1 mark]

5. Similar triangles have length factor 1.5. A smaller side is 8 cm. Find its match. [2 marks]

6. Two right triangles have equal hypotenuses and one equal corresponding leg. Name a valid congruence test. [2 marks]

7. A circle radius 5 cm has chord 8 cm. Find perpendicular centre distance. [2 marks]

8. A circle has centre O. From an exterior point P, PA is tangent at A. $PA = 12$ cm and $OA = 5$ cm. Find OP. [2 marks]

9. A minor central angle is 110°. C lies on its major arc. Find the corresponding circumference angle. [2 marks]

10. AB is a diameter of a circle and C is another point on the circle. $\angle CAB = 27^\circ$. Find $\angle ABC$. [2 marks]

11. A cyclic quadrilateral has an angle 104°. Find its opposite angle. [2 marks]

12. A tangent-chord angle is 39°. Find the circumference angle in the alternate segment. [2 marks]

13. $AB = AD, BC = CD$ and AC is shared. Prove triangles ABC and ADC congruent. [3 marks]

14. AB is 10 cm. Explain why compass radius 6 cm works for its perpendicular-bisector construction but 4 cm does not. [3 marks]

15. Disprove: one equal angle makes two triangles similar. [3 marks]

16. In triangle $ABC, AB = AC$ and D is midpoint BC. Prove $AD \perp BC$. [4 marks]