Test - Angles, polygons and properties of shapes

Year: Year 10 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – Angles in triangles

Non-calculator. In triangle PQR, angle $P = 63^\circ$ and angle $Q = 57^\circ$. The side PR is extended to a point S beyond R.

a. Find angle PRQ, giving a reason. (2 marks)
b. Find angle QRS and give a reason. (2 marks)

Question 2 (4 marks)

Question 2 – Regular polygons

Calculator allowed.

a. Work out the interior angle of a regular 20-sided polygon. (2 marks)
b. A regular polygon has an exterior angle of 18°. How many sides has it? (1 mark)
c. Work out the sum of the interior angles of a heptagon. (1 mark)

Question 3 (4 marks)

Question 3 – Problem: forming an equation

The angles of a quadrilateral are x, $2x + 10$, $3x - 20$ and $4x$ degrees.

a. Show that $10x - 10 = 360$. (2 marks)
b. Find the size of the largest angle. (2 marks)

Question 4 (4 marks)

Question 4 – Problem: bearings

A ship sails from port P on a bearing of 072° to port Q. It then sails on a bearing of 144°

to port R. PQ = QR.

a. Find the back bearing of P from Q. (1 mark)
b. Find angle PQR. (1 mark)
c. Find the bearing of R from P. (2 marks)

Question 5 (4 marks)

Question 5 – Higher: circle theorems

Higher tier. A, B and C are points on a circle with centre O. TA is a tangent. Angle $ABC = 64°$.

a. Find angle AOC and give the reason. (2 marks)
b. Triangle OAC is isosceles. Find angle OAC. (1 mark)
c. Find angle TAC given that TA is a tangent at A. (1 mark)