FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

G1: Polygons and symmetry

Solve problems involving properties of polygons and symmetry

20 marks · 25 minutes · Non-calculator

1) Each interior angle of a regular polygon is 140°. How many sides and how many lines of symmetry does it have?

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[Question 1: 3 marks]

2) Three regular hexagons with sides of 4 cm are joined in a row, each sharing one edge with the next. Find the perimeter of the shape.

..... cm

[Question 2: 3 marks]

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3) Can regular octagons and squares fit together around a point with no gaps? Show your working.

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[Question 3: 3 marks]

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4) The exterior angle of a regular polygon is half of its interior angle. Name the polygon.

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[Question 4: 3 marks]

5) An isosceles triangle has a perimeter of 30 cm and a base of 8 cm. Find the length of each equal side.

..... cm

[Question 5: 2 marks]

6) A quadrilateral has exactly 2 lines of symmetry, rotational symmetry of order 2, equal sides and diagonals of different lengths. One angle is 70°. Name it and find its other angles.

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[Question 6: 3 marks]

7) *ABCDE* is a regular pentagon. Find angle *ACB*.

..... °

[Question 7: 3 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	9 sides, 9 lines	Exterior 40° (P1); 360 ÷ 40 (P1); A1.
2	56	Total 18 edges, 4 shared (P1, P1); 14 edges ×4 (A1).
3	Yes	Octagon interior 135° (P1); 135 + 135 + 90 = 360 (P1); C1.
4	Hexagon	$e + 2e = 180$ (P1); $e = 60°$ (P1); A1.
5	11	$30 - 8 = 22$ (P1); A1.
6	Rhombus; 110, 70, 110	Rhombus (A1); co-interior 110° (P1); A1.
7	36	Interior 108° (P1); triangle ABC isosceles (P1); $\frac{180 - 108}{2}$ (A1).