FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

G3: Angle problems

Solve problems using angle facts in lines, triangles and polygons

20 marks · 25 minutes · Non-calculator

1) The interior angles of a regular polygon add up to 1800°. Find the number of sides and the exterior angle.

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[Question 1: 3 marks]

2) The angles of a triangle are $x°$, $(2x + 10)°$ and $(3x - 40)°$. Find the exterior angle at the vertex with angle $(3x - 40)°$.

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[Question 2: 3 marks]

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3) Two parallel lines are crossed by a transversal. Two co-interior angles are $(3x + 10)°$ and $(2x + 20)°$. Find x.

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[Question 3: 3 marks]

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4) A regular hexagon and a square share an edge. Find the angle between them at a shared vertex, measured outside both shapes.

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[Question 4: 3 marks]

5) The angles of a quadrilateral are in the ratio 2 : 3 : 3 : 4. Find the largest angle.

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[Question 5: 2 marks]

6) Each interior angle of a regular polygon is 5 times its exterior angle. How many sides does it have?

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[Question 6: 3 marks]

7) A pentagon has angles x, x, $2x$, $2x$ and 120°. Find the largest angle.

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[Question 7: 3 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	12; 30°	$(n - 2) \times 180 = 1800$ (P1); $n = 12$ (A1); $360 \div 12$ (A1).
2	115	$6x - 30 = 180$ (P1); $x = 35$ (P1); $180 - 65$ (A1).
3	30	$5x + 30 = 180$ (P1, P1); A1.
4	150	120 and 90 (P1, P1); $360 - 210$ (A1).
5	120	$360 \div 12 = 30$ (P1); A1.
6	12	$6e = 180$ (P1); $e = 30$ (P1); A1.
7	140	$6x + 120 = 540$ (P1); $x = 70$ (P1); A1.