FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

G6: Geometric problem solving

Solve problems using angle facts, Pythagoras and properties of shapes

20 marks · 25 minutes · Non-calculator

1) An isosceles triangle has base angles of $(2x + 10)°$ each and an apex angle of $x°$. Find all three angles.

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[Question 1: 3 marks]

2) A right-angled triangle has a hypotenuse of 25 cm. Its shorter sides are in the ratio 3 : 4. Find its perimeter.

..... cm

[Question 2: 3 marks]

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3) A 6.5 m ladder reaches 6 m up a wall. Its top slides down to 5.6 m. How far does its foot move away from the wall?

..... m

[Question 3: 4 marks]

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4) A square has a diagonal of 10 cm. Find its area.

..... cm^2

[Question 4: 2 marks]

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5) Find the exact height of an equilateral triangle with sides of 8 cm.

..... cm

[Question 5: 2 marks]

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6) In triangle *ABC*, *AB* = *AC* and angle *BAC* = 40°. *AD* bisects angle *BAC* and meets *BC* at *D*. Find angle *ADB*.

..... °

[Question 6: 3 marks]

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7) A rectangle is 8 cm by 6 cm. Find the perpendicular distance from one corner to the diagonal that does not pass through it.

..... cm

[Question 7: 3 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	32, 74, 74	$5x + 20 = 180$ (P1); $x = 32$ (P1); A1.
2	60	Sides 15 and 20 (P1, P1); A1.
3	0.8	Foot 2.5 (P1); new foot $\sqrt{6.5^2 - 5.6^2} = 3.3$ (P1, P1); A1.
4	50	Side $\sqrt{50}$ or half product of diagonals (P1); A1.
5	$4\sqrt{3}$	$\sqrt{64 - 16}$ (P1); A1.
6	90	Triangles *ABD* and *ACD* congruent (P1); angles at *D* equal and on a line (P1); A1.
7	4.8	Diagonal 10 (P1); area = $\frac{1}{2} \times 10 \times h = 24$ (P1); A1.