FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... **Class** .....

G5: Congruence

Solve problems using congruent triangles

20 marks · 25 minutes · Non-calculator

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1) A kite is split by its line of symmetry into two congruent triangles, each of area 24 cm^2. Its line of symmetry is 12 cm long. Find the length of the other diagonal.

..... cm

[Question 1: 3 marks]

2) $ABCD$ is a square of side 10 cm. E is on AB and F is on BC, with $AE = BF = 3$ cm. Show that triangles DAE and ABF are congruent, and find the exact length of DE.

..... cm

[Question 2: 4 marks]

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3) A parallelogram of area 60 cm^2 is split into two congruent triangles by a diagonal. One triangle has a base of 12 cm. Find its perpendicular height.

..... cm

[Question 3: 2 marks]

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4) Triangle ABC has $AB = AC = 13\,\text{cm}$ and $BC = 10\,\text{cm}$. M is the midpoint of BC. Find AM and the area of the triangle.

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[Question 4: 3 marks]

5) Two congruent right-angled triangles, each with hypotenuse 10 cm and one side 6 cm, are joined along their hypotenuses to make a rectangle. Find its area and perimeter.

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[Question 5: 3 marks]

6) A regular hexagon with sides of 4 cm is split into 6 congruent equilateral triangles. Find the exact area of the hexagon.

..... cm^2

[Question 6: 3 marks]

7) Triangles *ABC* and *PQR* are congruent with *A*, *B*, *C* matching *P*, *Q*, *R*. Angle *A* = 40° and angle *B* = 75°. Find angle *R*.

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[Question 7: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	8	Kite area 48 (P1); $\frac{1}{2} \times 12 \times d = 48$ (P1); A1.
2	$\sqrt{109}$	$AD = AB$, $AE = BF$, right angles (P1); SAS (C1); $\sqrt{100+9}$ (P1); A1.
3	5	Triangle area 30 (P1); A1.
4	12; 60	$AM \perp BC$ by congruence (P1); $\sqrt{169-25}$ (A1); area (A1).
5	48; 28	Other side 8 (P1); area (A1); perimeter (A1).
6	$24\sqrt{3}$	Triangle height $2\sqrt{3}$ (P1); triangle area $4\sqrt{3}$ (P1); A1.
7	65	$C = 65$ (P1); A1.