FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

G5: Congruent triangles

Congruence conditions SSS, SAS, ASA and RHS

20 marks · 25 minutes · Non-calculator

1) For each pair of triangles, state the condition that shows they are congruent. Choose from SSS, SAS, ASA, AAS, RHS.

(a) All three pairs of sides are equal.

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(1)

(b) Two pairs of sides and the angle between them are equal.

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(1)

(c) Two pairs of angles and the side between them are equal.

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(1)

(d) Both have a right angle, equal hypotenuses and one other equal side.

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(1)

(e) Two pairs of angles and a side that is not between them are equal.

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(1)

[Question 1: 5 marks]

2) Two triangles both have angles of 50°, 60° and 70°. Must they be congruent? Give a reason.

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[Question 2: 2 marks]

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3) Triangles *ABC* and *PQR* are congruent, with *A* matching *P*, *B* matching *Q* and *C* matching *R*. *AB* = 6 cm, *BC* = 8 cm and angle *C* = 35°.

(a) Write down the length of *QR*.

..... cm

(1)

(b) Write down the size of angle *R*.

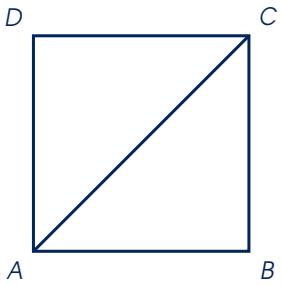
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(1)

[Question 3: 2 marks]

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4) *ABCD* is a square with diagonal *AC*.



Which condition shows that triangles *ABC* and *ADC* are congruent? Give the three pairs of equal parts.

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[Question 4: 2 marks]

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5) Triangle *ABC* is isosceles with *AB* = *AC*. *M* is the midpoint of *BC*. Which condition shows that triangles *ABM* and *ACM* are congruent? Give the three pairs of equal parts.

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[Question 5: 2 marks]

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6) *ABCD* is a parallelogram with diagonal *BD*. Which condition shows that triangles *ABD* and *CDB* are congruent? Give the three pairs of equal parts.

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[Question 6: 2 marks]

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7) Triangle 1 has $AB = 7$ cm, angle $A = 50°$ and angle $B = 60°$. Triangle 2 has $DE = 7$ cm, angle $D = 50°$ and angle $E = 60°$. Which condition shows they are congruent?

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[Question 7: 1 marks]

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8) Is "two sides and an angle that is *not* between them" always enough to show two triangles are congruent?

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[Question 8: 1 marks]

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9) Two right-angled triangles each have a hypotenuse of 10 cm and another side of 6 cm. Find the length of the third side.

..... cm

[Question 9: 2 marks]

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10) Triangles XYZ and LMN are congruent, with X, Y, Z matching L, M, N. Angle $X = 48°$ and angle $Y = 67°$. Find angle N.

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[Question 10: 1 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	(a) SSS (b) SAS (c) ASA (d) RHS (e) AAS	B1 each.
2	No	They could be different sizes (similar, not congruent) (B2).
3	(a) 8 (b) 35	B1 each.
4	SSS	$AB = AD$, $BC = DC$, AC common (B1); SSS (B1).
5	SSS	$AB = AC$, $BM = CM$, AM common (B1); SSS (B1).
6	SSS	$AB = CD$, $AD = CB$, BD common (B1); SSS (B1).
7	ASA	B1.
8	No	B1.
9	8	$\sqrt{100 - 36}$ (M1); A1.
10	65	B1.