GCSE HIGHER · REVISION MAT 3

Congruence and geometric proof

1 Two triangles have sides 6 cm, 9 cm and 10 cm.

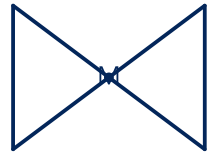
Which condition shows they are congruent?

2 Two right-angled triangles have hypotenuse 13 cm and a side of 5 cm.

Which condition shows they are congruent?

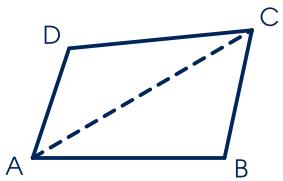
3 Explain why triangles with sides 3, 4, 5 and 3, 4, 6 are not congruent.

4 AB and CD cross at M, the midpoint of both.

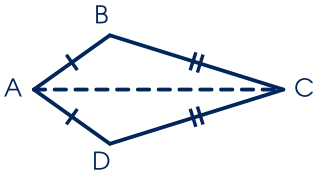


Prove that AC = BD.

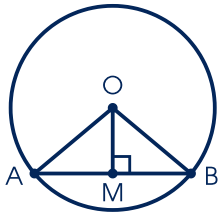
5 Prove that the angles in a quadrilateral add up to 360°.



6 Prove that a kite has a pair of equal opposite angles.

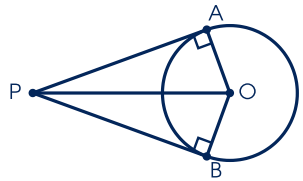


7 Prove that the perpendicular from the centre of a circle to a chord bisects the chord.



8 PA and PB are tangents from P to a circle with centre O.

Prove that PA = PB.



ANSWERS · REVISION MAT 3

Congruence and geometric proof

1 **SSS**

2 **RHS**

3 **The third sides are different.**

4 AM = MB, CM = MD

Angle AMC = angle BMD (vertically opposite)

Congruent by SAS, so AC = BD

5 A diagonal splits it into two triangles.

2 × 180 = 360°

6 In kite ABCD, AB = AD, CB = CD, AC common

Triangles congruent (SSS)

Angle B = angle D

7 OA = OB (radii), OM common, right angles at M

Triangles OAM and OBM congruent (RHS)

AM = BM

8 OA = OB, OP common, angles at A and B are 90°

Congruent by RHS

PA = PB

Mr&Mrs MATHS