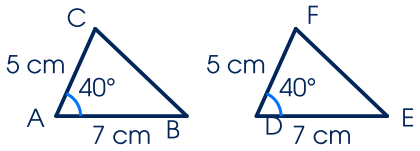
GCSE HIGHER · REVISION MAT 1

Congruence and geometric proof

1 Write down the four conditions that prove two triangles are congruent.

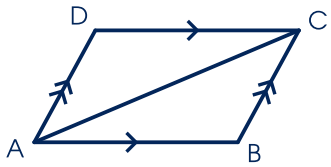
2 Which condition shows these triangles are congruent?



3 Explain why three equal angles do not prove two triangles are congruent.

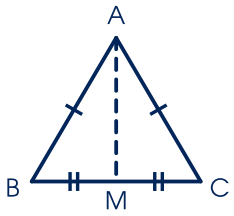
4 ABCD is a parallelogram.

Prove that triangles ABC and CDA are congruent.

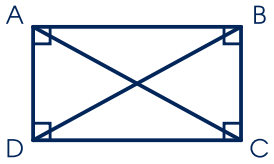


5 Triangle ABC has AB = AC. M is the midpoint of BC.

Prove that angle ABC = angle ACB.

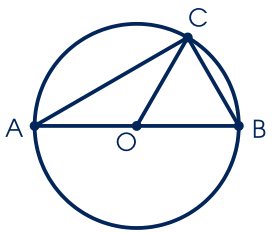


6 Prove that the diagonals of a rectangle ABCD are equal.

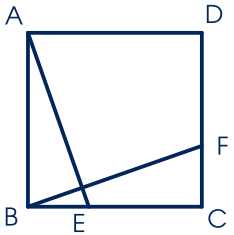


7 AB is a diameter of a circle with centre O. C is on the circle.

Prove that angle ACB = 90°.



8 ABCD is a square. E is on BC and F is on CD with BE = CF.



Prove that AE = BF.

ANSWERS · REVISION MAT 1

Congruence and geometric proof

1 **SSS, SAS, ASA (or AAS), RHS**

2 **SAS: two sides and the included angle are equal.**

3 **The triangles could be different sizes (similar, not congruent).**

4 AB = CD and BC = DA (opposite sides)

AC is common

Congruent by SSS

5 AB = AC, BM = CM, AM common

Triangles ABM and ACM congruent (SSS)

So angle B = angle C

6 AB = DC, BC common, angle ABC = angle DCB = 90°

Triangles ABC and DCB congruent (SAS)

AC = DB

7 OA = OB = OC, so triangles OAC and OBC are isosceles.

$2x + 2y = 180$

Angle ACB = $x + y = 90°$

8 AB = BC, BE = CF, angle ABE = angle BCF = 90°

Triangles ABE and BCF congruent (SAS)

AE = BF

Mr&Mrs MATHS