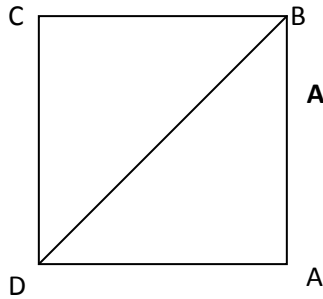


CONGRUENT TRIANGLES

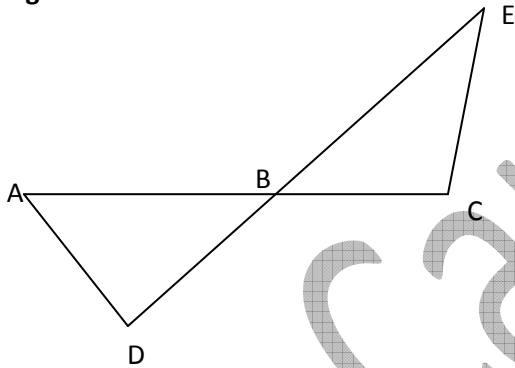
**Question 1**



ABCD is a square. Prove that triangles ADB and CDB are congruent.

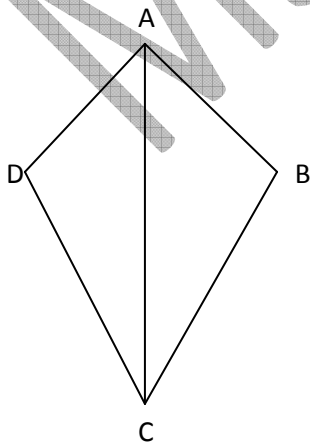
**Question 2**

ABC is a straight line and so is DBE.  $AB=BE$  and  $DB=BC$ . Prove that triangles ABD and EBC are congruent.



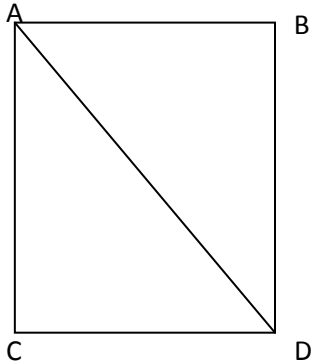
**Question 3**

ABCD is a kite in which  $AD=AB$  and  $CD=BC$ . Prove that triangle ADC and ABC are congruent.



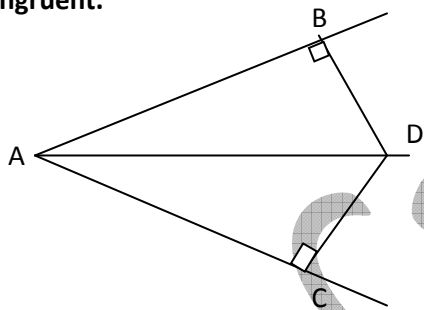
**Example 4**

The diagram shows the rectangular outer frame, ABCD, of a door with a diagonal brace AC. Prove that ABC and CDA are congruent.



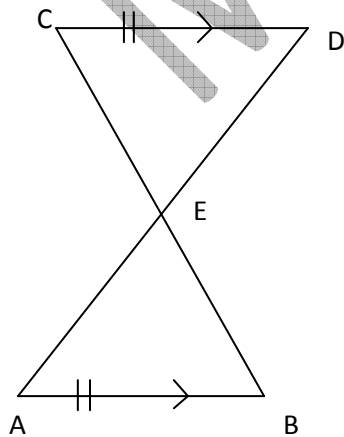
**Question 5**

Part of a mechanism for a pair of governors in an engine is shown in the diagram. AD bisects angle BAC, DB is perpendicular to AB and DC is perpendicular to AC. Prove that triangles ABD and ACD are congruent.



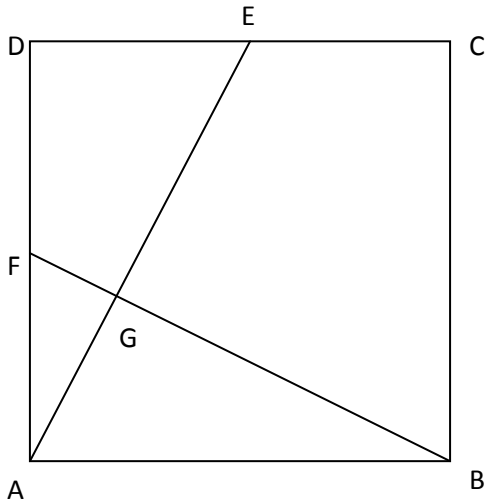
**Question 6**

A portion of the framework for a roof truss is shown in the diagram. The grindlers AB and CD are equal and parallel. Prove that triangles ABE is congruent to triangle ECD.



**Question 7**

A child's puzzle is made from a wooden square, cut into four pieces as in the diagram. E is the midpoint of DC and F is the midpoint of AD. Show that triangles ADE and BAF are congruent.

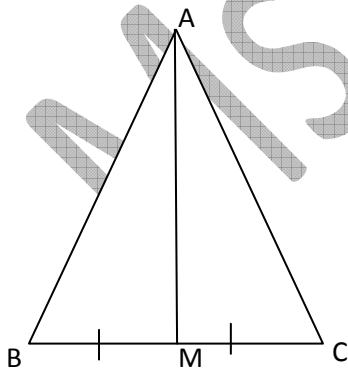


**Question 8**

ABC is an isosceles triangle, with AB equal to AC.

M is the midpoint of BC.

Explain why triangles ABM and ACM are congruent. From this it follows that angle ABM = angle ACM.



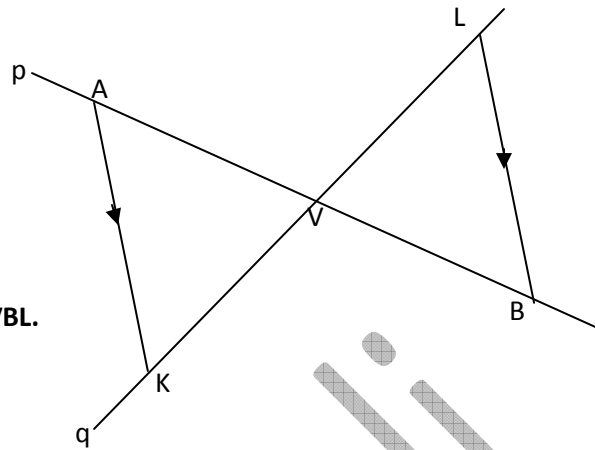
**Question 9**

The two line p and q cross at V.

$VA = VB$ .

AK is drawn parallel to BL.

Explain why triangle VAK is congruent to triangle VBL.



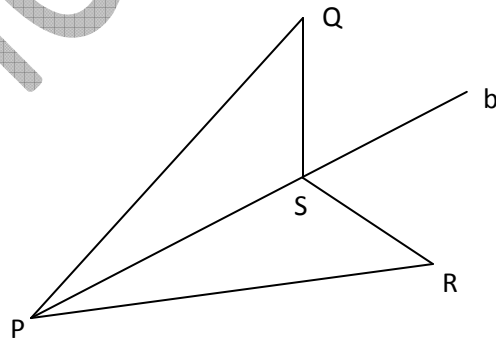
**Question 10**

The lines PQ and PR are equal in length.

Line b bisects angle QPR.

S is a point on b.

Explain why triangles PQS and PRS are congruent



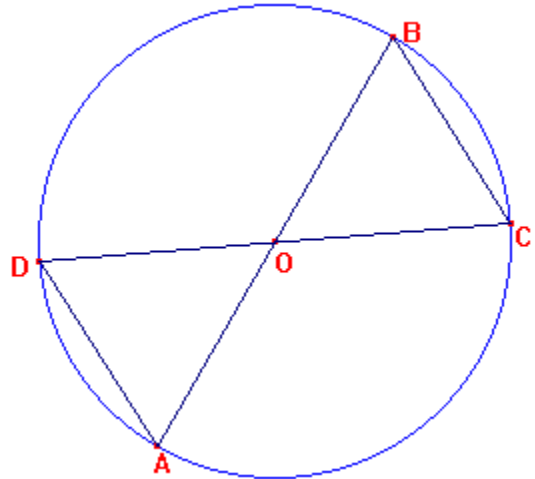
MS Camenzuli

**Question 11**

In the given diagram O is the centre of the circle in which AB and CD are diameters.

Prove that:

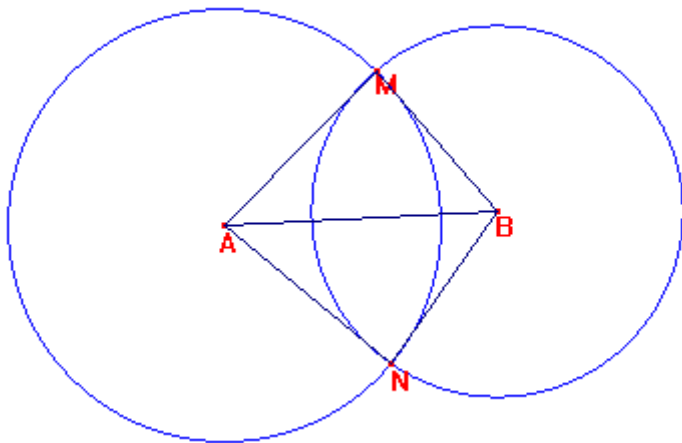
- a. Triangles AOD and BOC are congruent
- b.  $AD = BC$



**Question 12**

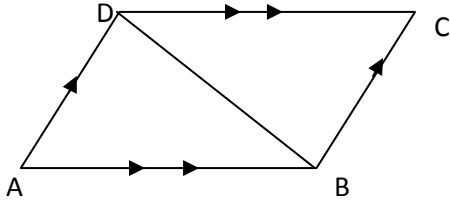
In the given diagram A and B are the centres of 2 unequal circle intersecting each other at M and N

- a. Prove that triangles AMB and ANM are congruent
- b. Prove that angles  $AMB = ANB$



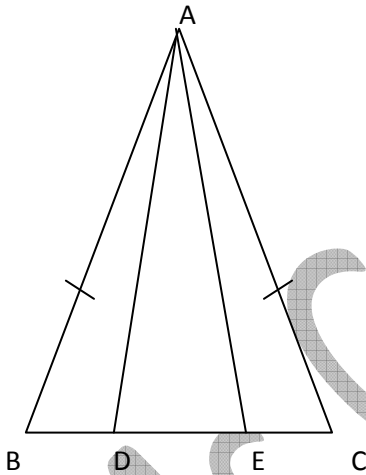
**Question 13**

Defining a parallelogram as a quadrilateral with both pairs of opposite sides parallel. Prove that triangles  $ABN$  and  $CDB$  are congruent.



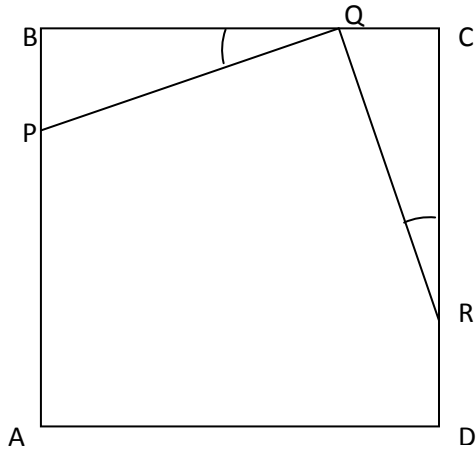
**Question 14**

In the given diagram  $AB = AC$  and  $\angle BAD = \angle CAE$ . Prove that  $BD = EC$



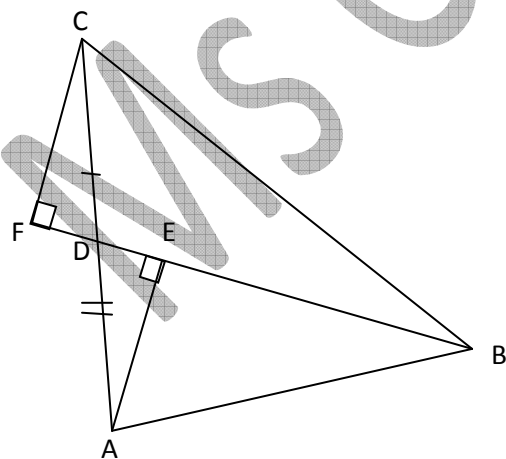
**Question 15**

Three components for making a doll's house can be cut from a square board ABCD. P, Q and R are points such that BP, CQ and DR are all equal. Show that  $\angle PQR = 90^\circ$ .



**Question 16**

In the diagram, D is the midpoint of AC, and AE and CF are both perpendicular to BF. By showing that triangles AED and CFD are congruent, prove that  $AE = CF$ .



**Example 17**

ABCD is a rectangle and E is the midpoint of AB. Join D to E and C to E and prove that DE and CE are equal in length.

**Example 18**

AB is a straight line. Draw a line AX perpendicular to AB. On the other side of AB, draw a line BY perpendicular to AB so that BY is equal to AX. Prove that  $\angle AXB = \angle BYA$ .

**Example 19**

Taking the definition of a rhombus as a parallelogram with equal adjacent sides, prove that the diagonals of a rhombus bisect each other at right angles.



Question 20

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