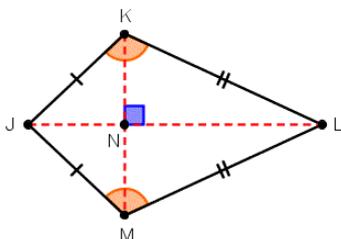




**Starter:**

Use the symbols on the diagram and using

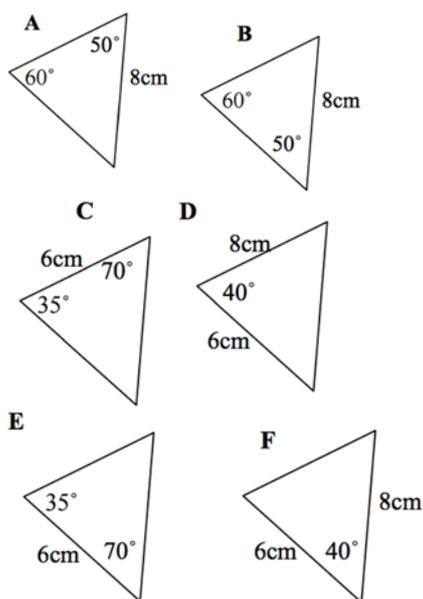


the letters ( $KM, J\hat{M}L$  etc.) to find:

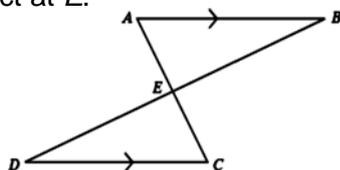
- a) A pair of equal sides
- b) Another pair of equal sides
- c) A pair of equal angles
- d) Two perpendicular lines

**Skills:**

Which pairs of triangles here are congruent? Give an explanation.



In the diagram, the lines  $AC$  and  $BD$  intersect at  $E$ .



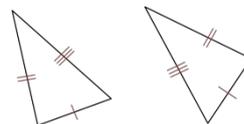
$AB$  and  $DC$  are parallel and  $AB = DC$ . Prove that triangles  $ABE$  and  $CDE$  are congruent.

**Top Tips!**

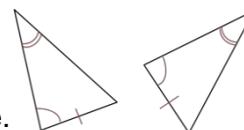
Two shapes are **congruent** if they are exactly the same size and shape.

Two triangles are **congruent** if any of these are true:

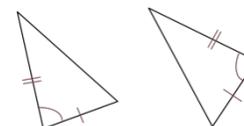
**SSS** – All corresponding pairs of sides are equal.



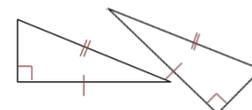
**ASA** – 2 angles and a side of one triangle are equal to the corresponding angles and side on the other triangle.



**SAS** – 2 sides and the angle between them are equal on both triangles.



**RHS** – Two right angled triangles have equal hypotenuses and one other equal side.



**Examination Question:**

Triangle  $ABC$  is an isosceles triangle with  $A\hat{B}C = A\hat{C}B$ .

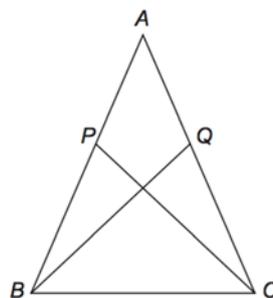


Diagram not drawn to scale

$P$  and  $Q$  are points on  $AB$  and  $AC$  respectively such that  $AP = AQ$ . Prove that triangle  $ABQ$  is congruent to triangle  $ACP$ . You must give reasons for each step of your proof.

**Assessment for Learning**

**Video / QR code**



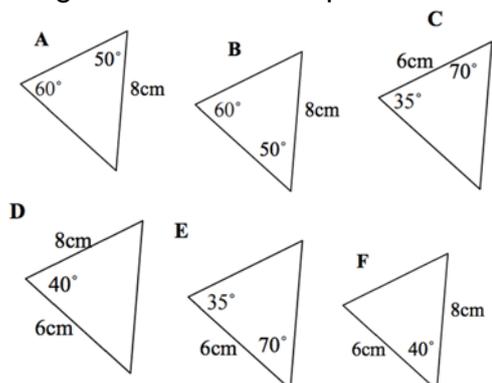
**Starter:**

Use the symbols on the diagram and using the letters ( $KM, \hat{JML}$  etc.) to find:

- a) A pair of equal sides  
**JK and JM or KL and LM**
- b) Another pair of equal sides  
**JK and JM or KL and LM**
- c) A pair of equal angles  
 **$\hat{JML}$  and  $\hat{JKL}$**
- d) Two perpendicular lines  
 **$K(N)M$  and  $J(N)L$**

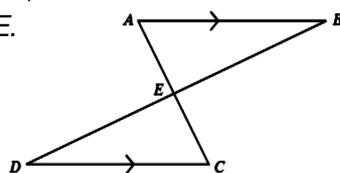
**Skills:**

Which pairs of triangles here are congruent? Give an explanation.



**A and B – ASA, C and E – ASA, D and F - SAS**

In the diagram, the lines  $AC$  and  $BD$  intersect at  $E$ .



$AB$  and  $DC$  are parallel and  $AB = DC$ . Prove that triangles  $ABE$  and  $CDE$  are congruent.

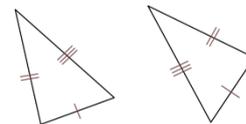
$\hat{D\hat{E}C} = \hat{A\hat{E}B}$  opposite angles  
 $\hat{A\hat{B}E} = \hat{C\hat{D}E}$  alternate angles ( $\hat{B\hat{A}E} = \hat{D\hat{C}E}$ ),  $AB = DC$   
 2 angles and a corresponding side are equal the triangles are congruent.

**Top Tips!**

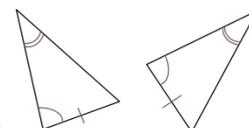
Two shapes are **congruent** if they are exactly the same size and shape.

Two triangles are **congruent** if any of these are true:

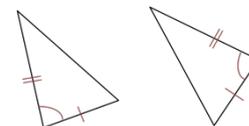
**SSS** – All **corresponding** pairs of sides are equal.



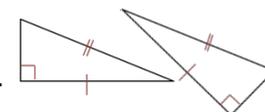
**ASA** – 2 angles and a side of one triangle are equal to the **corresponding** angles and side on the other triangle.



**SAS** – 2 sides and the **angle between** them are equal on both triangles.



**RHS** – Two right angled triangles have equal hypotenuses and one other equal side.



**Examination Question:**

Triangle  $ABC$  is an isosceles triangle with  $\hat{ABC} = \hat{ACB}$ .

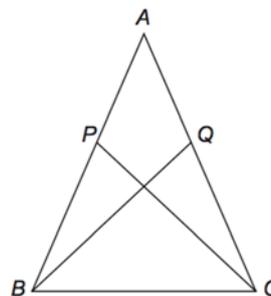


Diagram not drawn to scale

$P$  and  $Q$  are points on  $AB$  and  $AC$  respectively such that  $AP = AQ$ . Prove that triangle  $ABQ$  is congruent to triangle  $ACP$ . You must give reasons for each step of your proof.

Triangles  $PBC$  and  $QBC$  are congruent:

$AP=AQ$  and  $AB=AC$  then,  $PB=QC$   
 $BC$  is common to both triangles  
 $\hat{ABC} = \hat{ACB}$ ,  $PBC$  and  $QBC$  are congruent reason:SAS

Therefore,  $PC=QB$

Triangles  $ABQ$  and  $ACP$  are congruent:

$PC=QB$ ,  $AP=AQ$  and  $AB = AC$  due to an isosceles triangle  
 All three corresponding sides equal (SSS) therefore congruent.

**Assessment for Learning**

**Video / QR code**