
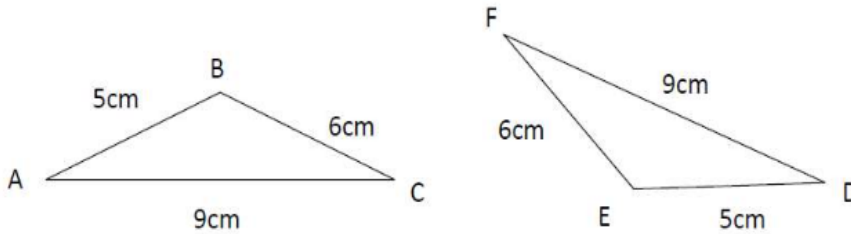


Congruent Triangles

(\cong) ← congruent

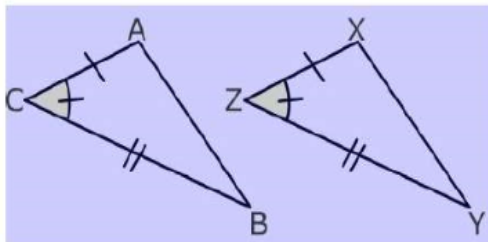
● **Theorem 1 – Side Side Side (SSS)** 

If all 3 sides measure the same in both triangles, they are congruent.

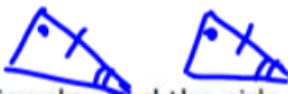


● **Theorem 2 – Side Angle Side (SAS)** 

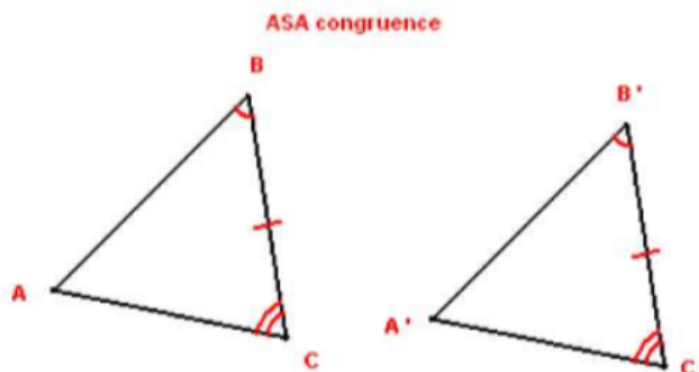
If 2 sides measure the same in both triangles and the angles between those 2 sides is also the same, they are congruent.



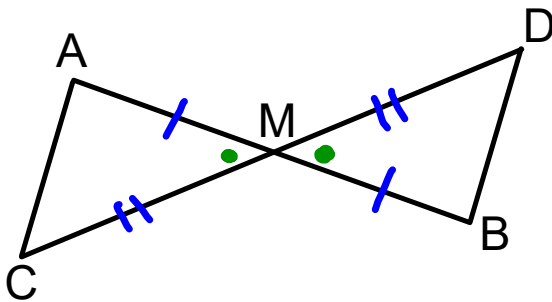
*Be careful with the orientation of the triangles – flip them around and re-draw them if necessary. Make sure you are looking at the triangles in the same views.

● **Theorem 3 – Angle Side Angle (ASA)** 

If 2 angles measure the same in both triangles and the side between those 2 angles is also the same, they are congruent.



Prove the following triangles are congruent, given M is the midpoint of AB and CD.



goal: prove
~~SSS~~
 SAS
~~ASA~~

| Statement | Justification |
|-------------------------------------|--|
| $\overline{AM} = \overline{MB}$ | M is the midpoint of \overline{AB} . (given) |
| $\overline{CM} = \overline{MD}$ | M is the midpoint of \overline{CD} . (given) |
| $\angle AMC = \angle DMB$ | Vertically opposite angles are equal. |
| $\triangle AMC \cong \triangle DMB$ | SAS |