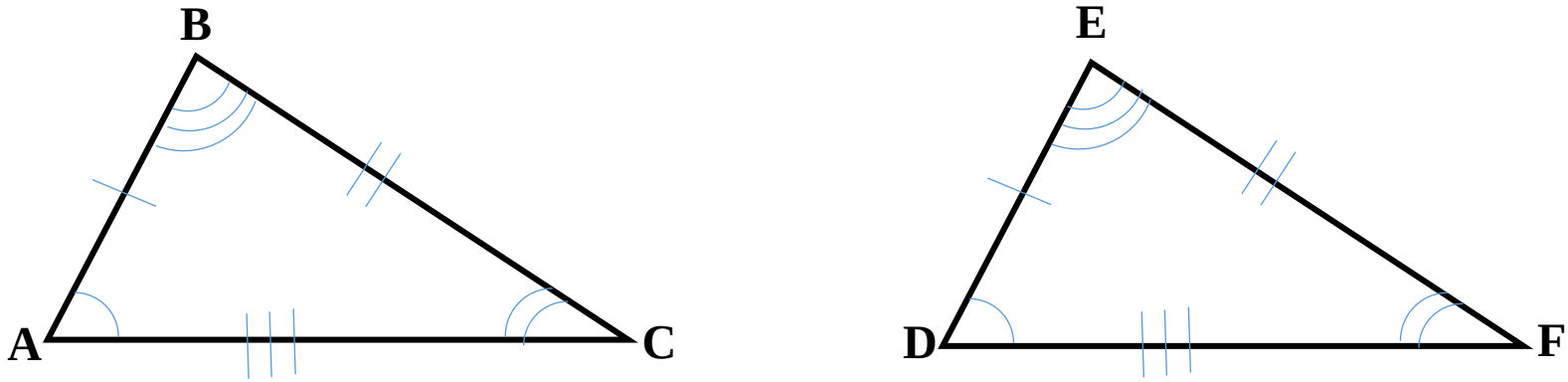
Congruence of Triangles:

Two triangles are congruent if the corresponding angles and sides are congruent.



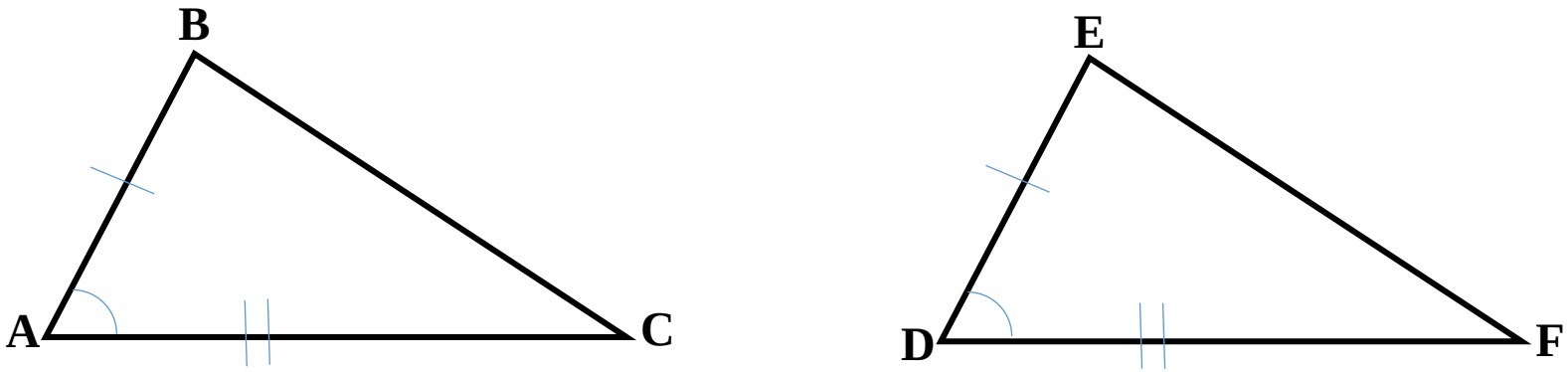
$\Delta ABC \cong \Delta DEF$

6 things must be congruent in order for the two triangles to be congruent.

Sides or angles are congruent if they have the same measure.

When is a fewer number of congruences enough to conclude that all 6 are congruent?

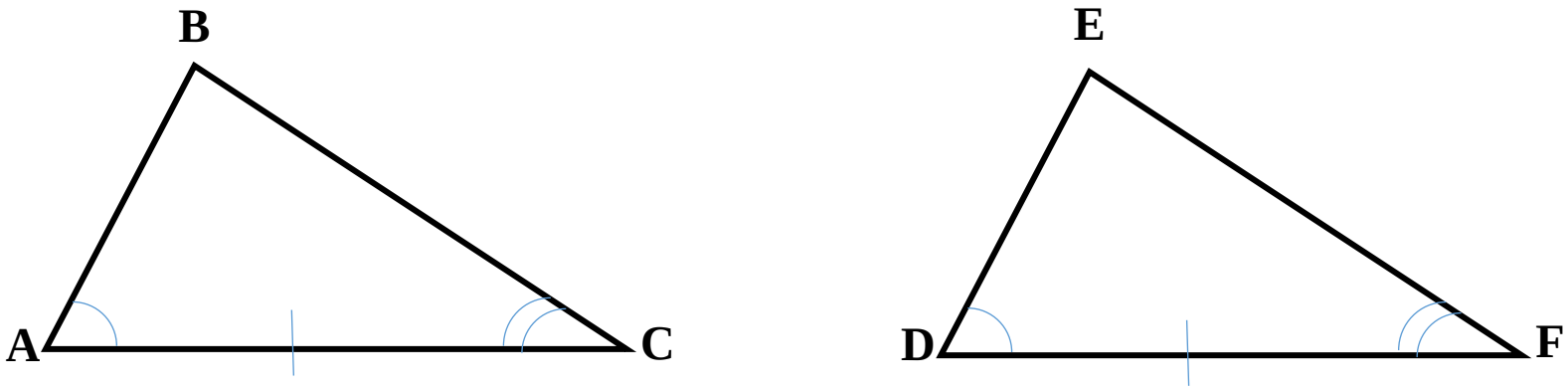
Side-Angle-Side(SAS) Congruence:



$\Delta ABC \cong \Delta DEF$

If two sides and the included angle are congruent between two triangles, then the two triangles must be congruent.

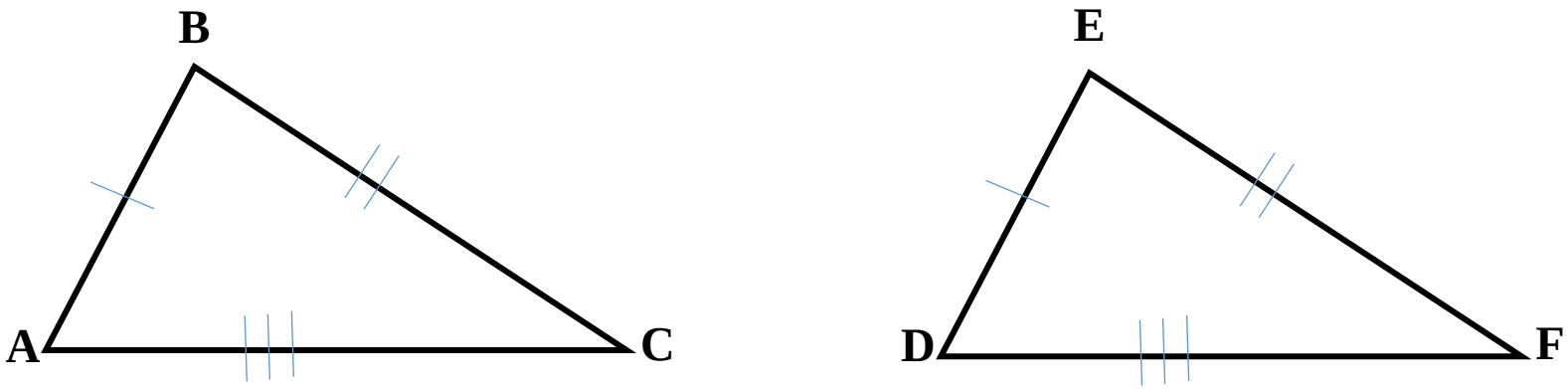
Angle-Side-Angle(ASA) Congruence:



$\Delta ABC \cong \Delta DEF$

If two angles and the included side are congruent between two triangles, then the two triangles must be congruent.

Side-Side-Side(SSS) Congruence:

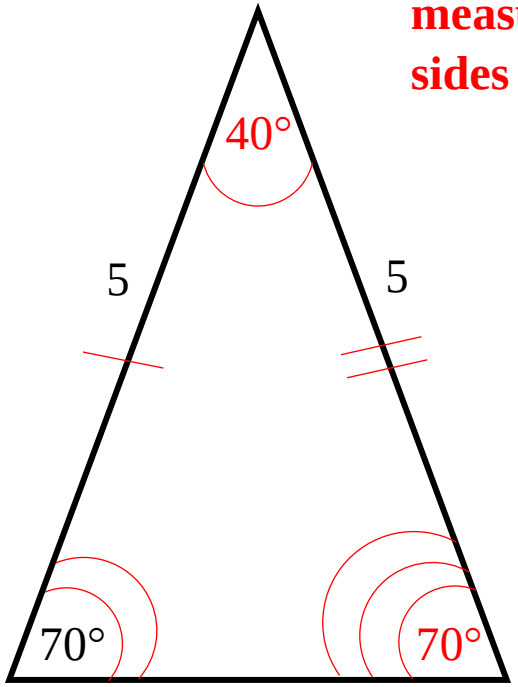


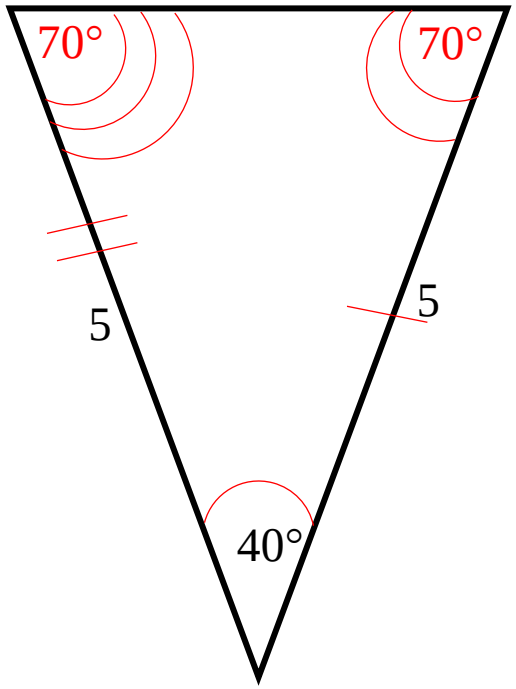
$\Delta ABC \cong \Delta DEF$

If three sides are congruent between two triangles, then the two triangles must be congruent.

Determine if the following pairs of triangles are congruent:

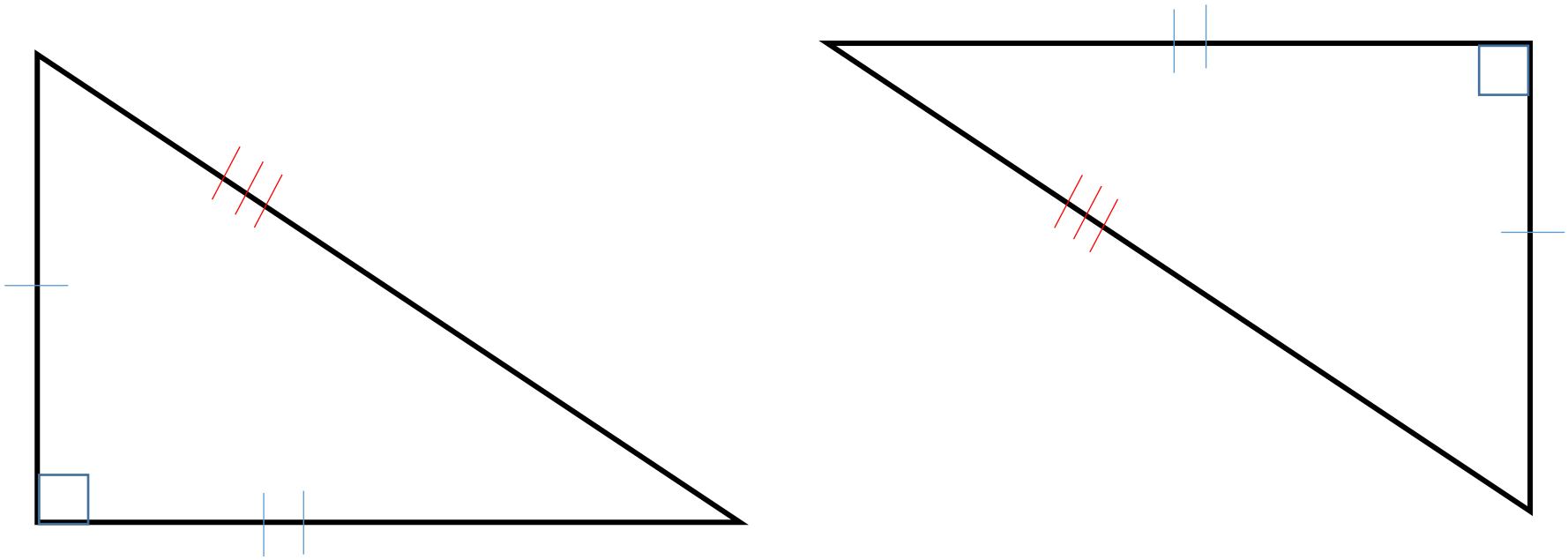
Begin by labelling all the additional information about the measurements-angle sum is $180°$ and angles opposite congruent sides are congruent.





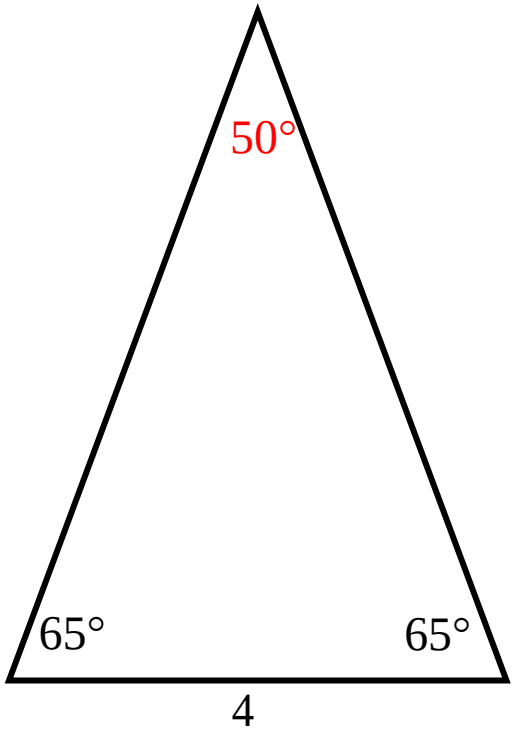
They are congruent by SAS or ASA.

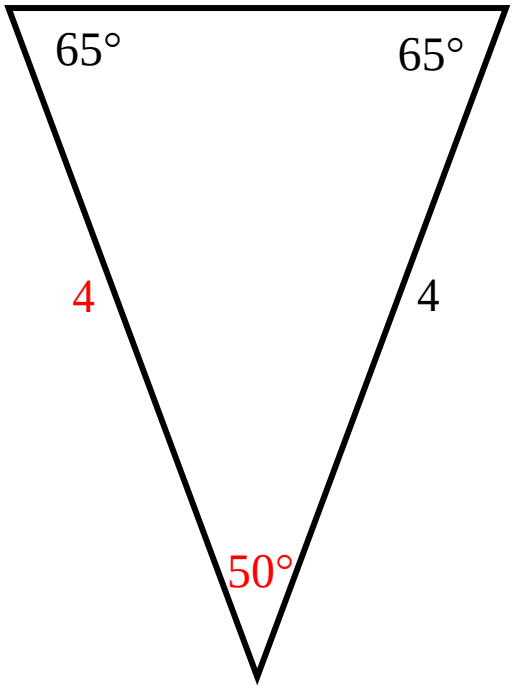
Begin by labelling all the additional information about the measurements- Pythagorean theorem.



They are congruent by SAS without further labelling or by SSS after further labelling.

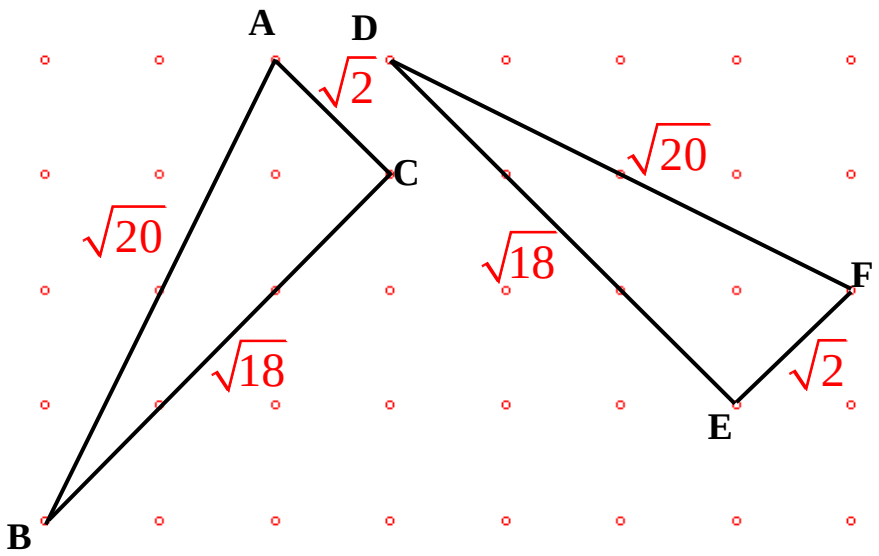
Begin by labelling all the additional information about the measurements-angle sum is $180°$ and sides opposite congruent angles are congruent.





If the triangles were congruent, then the side measurement in the triangle on the right between the two $65°$ angles would have to be 4. This would imply it's an equilateral triangle, and therefore that all of its angles are $60°$, which they aren't. So the two triangles are not congruent.

Begin by labelling all the additional information about the measurements- Pythagorean theorem.



The triangles are congruent by SSS.