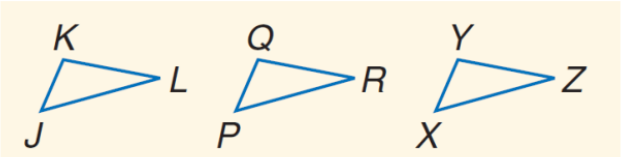
CPCTC = Corresponding Parts of Congruent Triangles are Congruent
Explain what this means *in your own words*:

Properties of Congruent Triangles



- **Reflexive Property of Congruent Triangles**

- **Symmetric Property of Congruent Triangles**

- **Transitive Property of Congruent Triangles**

Congruence Transformations: Things that we can "do to" a triangle that won't change the size or shape of the triangle – the triangle remains congruent to itself.

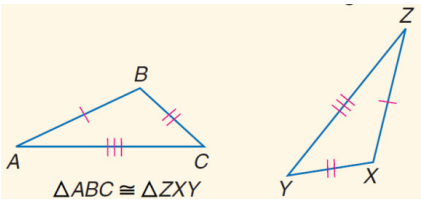
- Slide (translate)
- Turn (rotate)
- Flip (reflect)

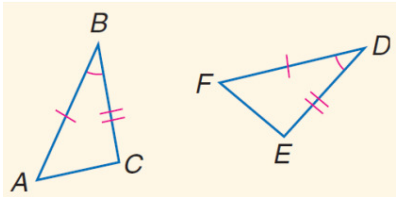
Proving Triangles Congruent

Q: CPCTC – do we always need to know all 6 pairs of congruent parts?

A: No! We have 4 other rules that help us prove that any two triangles are congruent based on 3 specific parts.

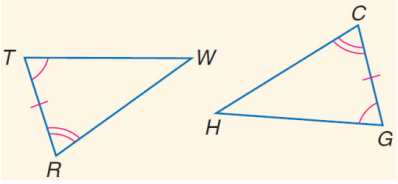
1. **SSS Postulate (Side-Side-Side)**: If the sides of one triangle are congruent to the sides of a second triangle, then the triangles are congruent.

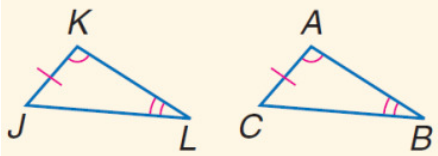




2. **SAS Postulate (Side-Angle-Side):** If two sides and the included angle of one triangle are congruent to two sides and the included angle of another triangle, then the triangles are congruent.

3. **ASA Postulate (Angle-Side-Angle):** If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, the triangles are congruent.



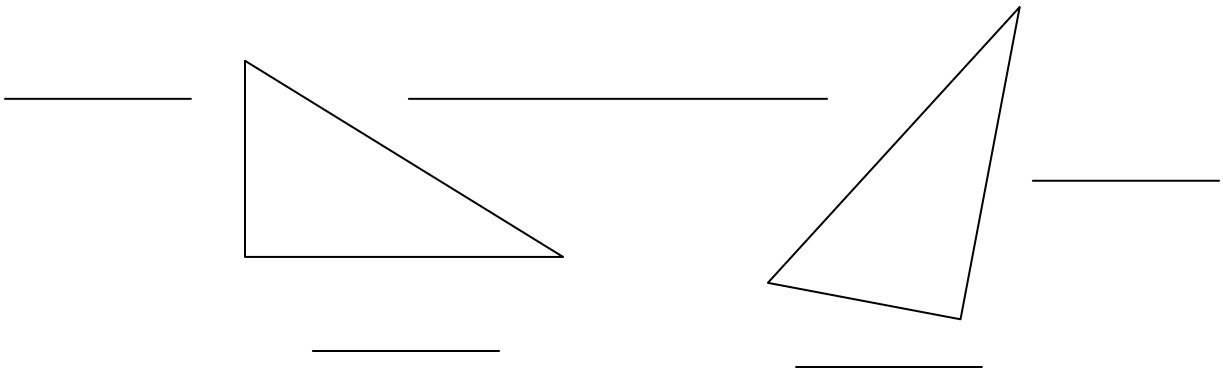


4. **AAS Theorem (Angle-Angle-Side):** If two angles and a nonincluded side of one triangle are congruent to the corresponding two angles and side of a second triangle, the two triangles are congruent.

Right Triangle Congruence

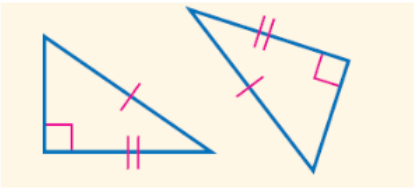
If a triangle is a right triangle, then we know that one angle measure is ***always*** _____.

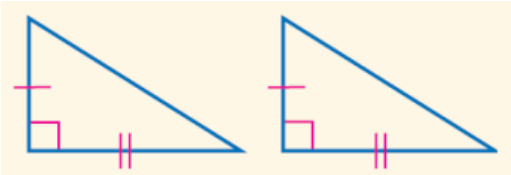
In a right triangle, we name the parts like this:



Since we are always given an angle in a right triangle, we need fewer parts to prove right triangles congruent (right angle is assumed):

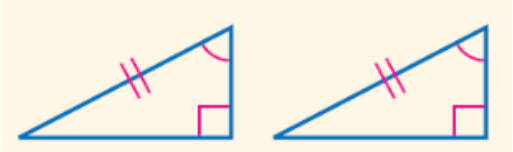
HL Postulate (Hypotenuse-Leg Congruence): If the hypotenuse and a leg of one right triangle are congruent to the hypotenuse and corresponding leg of another right triangle, then the triangles are congruent.

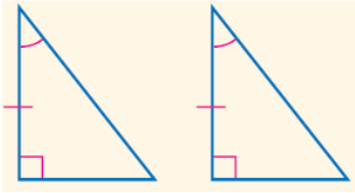




LL Theorem (Leg-Leg Congruence): If the legs of one right triangle are congruent to the legs of another right triangle, then the triangles are congruent.

HA Theorem (Hypotenuse-Angle Congruence): If the hypotenuse and one acute angle of one right triangle are congruent to the hypotenuse and corresponding acute angle of another right triangle, then the two triangles are congruent.





LA Theorem (Leg-Angle Congruence): If one leg and an acute angle of one right triangle are congruent to the corresponding leg and acute angle of another right triangle, then the triangles are congruent.