Name: Date: Period: 6

Side-Side-Side Triangle Congruence

Lesson Objective IWBAT use SSS≅ to prove 2 △s are ≅

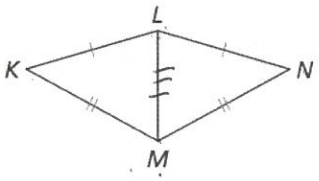
Side-Side-Side Congruence Theorem (SSS≅)

If three sides of one triangle are congruent to three sides of a second triangle, then the two triangles are congruent.

Using the SSS≅ Theorem

Examples:

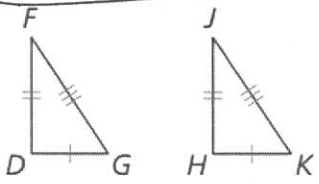
1. Write a two-column proof.
   Given: $\overline{KL} \cong \overline{NL}, \overline{KM} \cong \overline{NM}$
   Prove: $\Delta KLM \cong \Delta NLM$



Statements	Reasons
① $\overline{KL} \cong \overline{NL}$, $\overline{KM} \cong \overline{NM}$	① given
② $\overline{LM} \cong \overline{LM}$	② reflex. prop. ≅
③ $\Delta KLM \cong \Delta NLM$	③ SSS≅ (1, 1, 2)

2. Determine whether the congruence statement is true. Explain your reasoning.

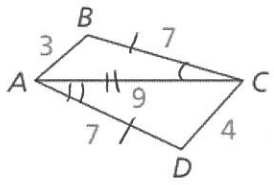
a. $\Delta DFG \cong \Delta HJK$



yes, by SSS≅

~~$\Delta DFG \cong \Delta HKJ$~~ ☹

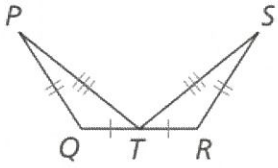
b. $\Delta ACB \cong \Delta CAD$



No, 3 ≠ 4 for SSS≅

also, $m\angle CAD > m\angle BCA$ for SAS≅

c. $\Delta QPT \cong \Delta RST$

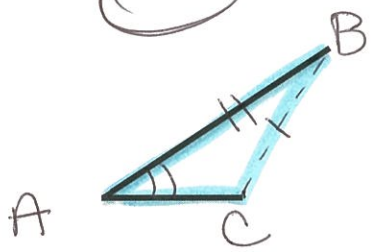


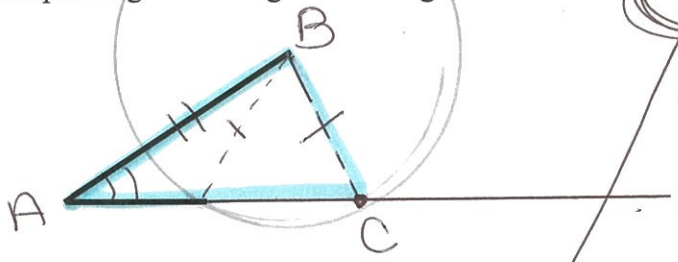
yes by SSS≅

3. Explain why the bench with the diagonal support is stable, while the one without the support can collapse.

not same!

You know that SAS≅ and SSS≅ are valid methods for proving that triangles are congruent. What about SSA≅?





not true in general because ...

if you rotate $\overline{BC}$ around point B, you can create another △ that is different than the original but w/ same given info