4.4 Prove Triangles Congruent by SSS.

Before You used the definition of congruent figures.

Now You will use the side lengths to prove triangles are congruent.

Why? So you can determine if triangles in a tile floor are congruent, as in Ex. 22.

G.CO.8 Explain how the criteria for triangle congruence (ASA, SAS, SSS) follow from the definition of congruence in terms of rigid motions.

G.CO.10 Prove theorems about triangles.

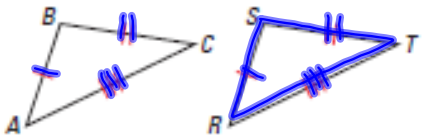
Congruence Postulates are shortcuts for showing triangle congruency.

POSTULATE *For Your Notebook*

POSTULATE 19 Side-Side-Side (SSS) Congruence Postulate

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

If Side $\overline{AB} \cong \overline{RS}$,
Side $\overline{BC} \cong \overline{ST}$, and
Side $\overline{CA} \cong \overline{TR}$,
then $\triangle ABC \cong \triangle RST$.



RECALL:

POLYGON CONGRUENCE POSTULATE

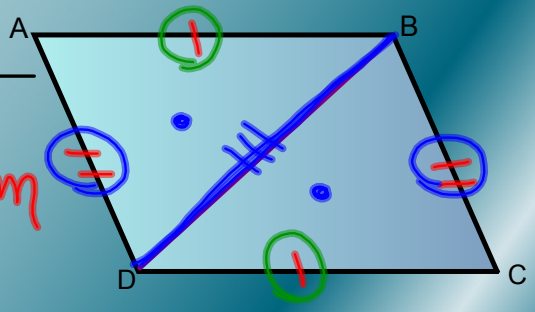
Two polygons are congruent iff there is a correspondence between their sides and angles such that:

Each pair of corresponding angles is congruent
Each pair of corresponding sides is congruent

Given: Parallelogram ABCD

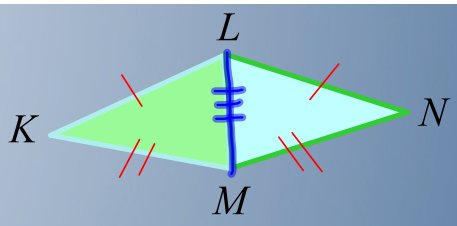
Prove: $\Delta ABD \cong \Delta CDB$

STATEMENT	REASON
ABCD is a parallelogram	Given
$\overline{AB} \cong \overline{CD}$, $\overline{AB} \cong \overline{CB}$	def'n ll'gram
$\overline{BD} \cong \overline{DB}$	Reflexive
$\Delta ABD \cong \Delta CDB$	SSS



Given: $\overline{KL} \cong \overline{NL}, \overline{KM} \cong \overline{NM}$

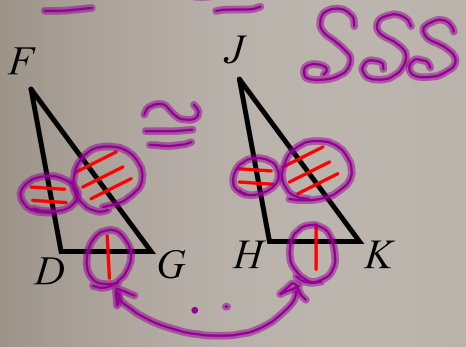
Prove: $\Delta KLM \cong \Delta NLM$



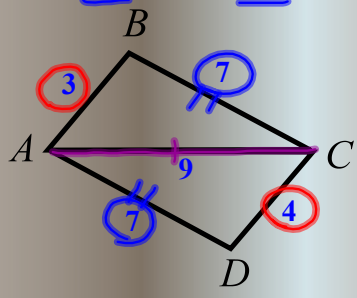
STATEMENT	REASON
$\overline{KL} \cong \overline{NL}, \overline{KM} \cong \overline{NM}$	Given
$\overline{LM} \cong \overline{LM}$	Reflexive Prop
$\Delta KLM \cong \Delta NLM$	SSS

Decide whether the congruence statement is true. Explain your reasoning.

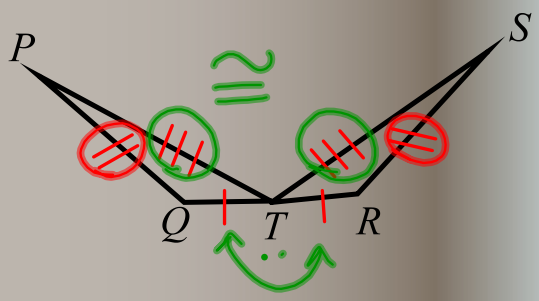
1. $\Delta DFG \cong \Delta HJK$



2. $\Delta ACB \cong \Delta CAD$



3. $\Delta QPT \cong \Delta RST$



Questionnaire