TOPIC/OBJECTIVE: Congruent Triangle Proofs

CONTENT/CLASS: Geometry

NAME:

CLASS/PERIOD: 2

DATE: 11/28/16

ESSENTIAL QUESTION: What do I need to know about 2 triangles to prove they are congruent?

QUESTIONS:

△ means triangle ≅ means congruent

Look around at the posters of triangles we created. Which posters show triangles that are all the same? Which posters show triangles that are different? Based on this, list what you need to know about a triangle in order to prove they are congruent (for example, one side, a side and an adjacent angle, all three sides, a side an an opposite angle, etc.)

Same (congruent)

G - side-angle-side (SAS)
F angle-side-angle (ASA)
H angle-angle-side (AAS)
B side-side-side (SSS)

all congruence conjectures (ways to prove △s are ≅)

not the same (not ≅)

A side-side (SS) } not enough info
C side-angle (SA) }
D side-angle (SA) }
E angle-angle (AA) proves ~ not ≅

I angle-side-side (ASS)
side-side-angle (SSA)
the other 2 angles could be different

Reminds from Semester 1:

Similar: same shape but not necessarily same size
Similarity conjectures: SSS, SAS, AA
Symbol: ~ keywords: proportional

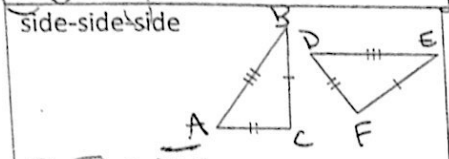
congruent: exact same sides and size
Symbol: ≅ keywords: the same, equal

SUMMARY:

QUESTIONS:

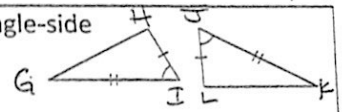
Congruence Conjectures (ways to prove △s are ≅)

side-side-side



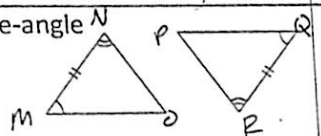
S $\overline{AB} \cong \overline{DE}$
S $\overline{BC} \cong \overline{EF}$
S $\overline{AC} \cong \overline{FD}$
} enough to prove $\triangle ABC \cong \triangle DEF$ by SSS≅

side-angle-side



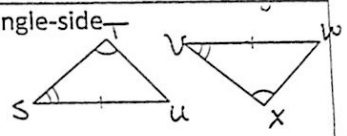
S $\overline{GI} \cong \overline{JK}$
A $\angle I \cong \angle J$ or $\angle GIH \cong \angle KJL$
S $\overline{HI} \cong \overline{JL}$
$\triangle IGH \cong \triangle JKL$ by SAS≅

angle-side-angle



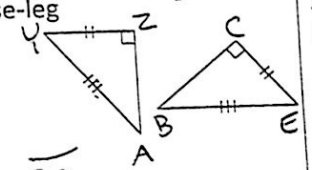
A $\angle M \cong \angle Q$ or $\angle NMO \cong \angle RQP$
S $\overline{MN} \cong \overline{QR}$
A $\angle N \cong R$ or $\angle MNO \cong \angle PRQ$
$\triangle MNO \cong \triangle QRP$ by ASA≅

angle-angle-side



A $\angle T \cong \angle X$ or $\angle STU \cong \angle VXW$
A $\angle S \cong \angle V$ or $\angle TSU \cong \angle XVW$
S $\overline{SU} \cong \overline{VW}$
$\triangle STU \cong \triangle VXW$ by AAS≅

hypotenuse-leg



H $\overline{AY} \cong \overline{BE}$
L $\overline{YZ} \cong \overline{CE}$
$\triangle AYZ \cong \triangle BEC$ by HL≅

Sets of sides and angles that DON'T prove congruence:

SSA or ASS does not prove congruence
AA proves Similarity not congruence

SUMMARY: