

TOPIC: 4.5 Prove Triangles Congruent by ASA And AAS

NAME: Mrs. H
DATE: Key

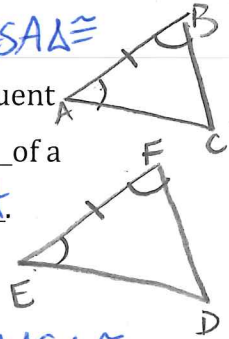
ESSENTIAL QUESTION: If one side of a Δ is \cong to a side of another Δ , what would you need to know about the \angle s to prove $\Delta \cong$?

QUESTIONS:

Postulate 21: Angle-Side-Angle Congruence Postulate $ASA \Delta \cong$

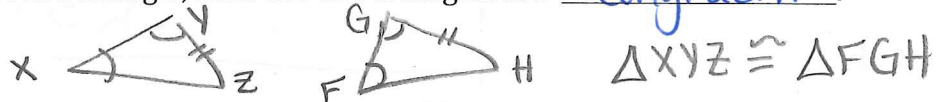
If two angles and the included side of one triangle are congruent to two angles and the included side of a second triangle, then the two triangles are congruent.

$$\Delta ABC \cong \Delta EFD$$

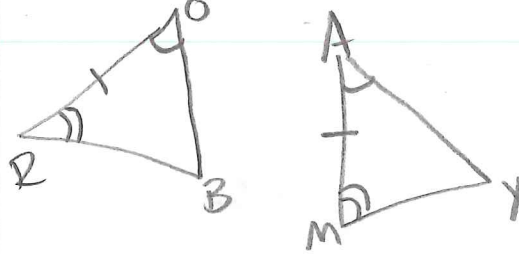


Theorem 4.6: Angle-Angle-Side Congruence Postulate $AAS \Delta \cong$

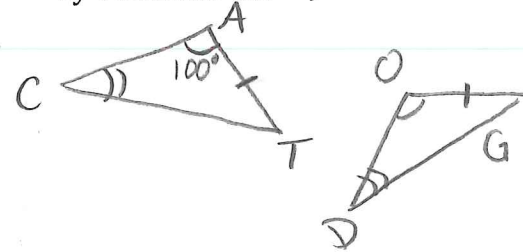
If two angles and a non-included side of one triangle are congruent to two angles and the corresponding non-included side of a second triangle, then the two triangles are congruent.



A1. Sketch triangles ROB and MAY that are congruent by ASA Congruence Postulate.



A2. Sketch obtuse ΔCAT and ΔDOG that are congruent by Theorem 4.6. AAS



A3. Can you use the given information to determine if $\Delta JKL \cong \Delta RST$? If so, give the reasoning.

a. $\angle J \cong \angle R, \angle K \cong \angle S, \angle L \cong \angle T$



NO
 $AAA \Delta \cong$
DNE

b. $\overline{JK} \cong \overline{RS}, \angle J \cong \angle R, \angle L \cong \angle T$



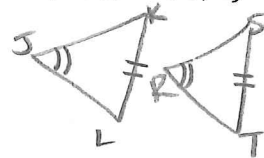
YES
 $AAS \Delta \cong$

c. $\overline{LK} \cong \overline{TS}, \angle K \cong \angle S, \angle L \cong \angle T$



YES
 $ASA \Delta \cong$

d. $\overline{LK} \cong \overline{TS}, \angle J \cong \angle R$



NO, not enough info

SUMMARY:

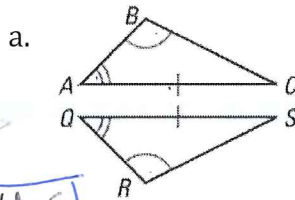
Given $\perp \cong$ side the \angle s that include the side of 1st Δ must be \cong to the \angle s that include the side in the 2nd Δ .

OR \rightarrow The \angle s of the 1st Δ that do not include the side need to be \cong to the \angle s that do not include in 2nd Δ .

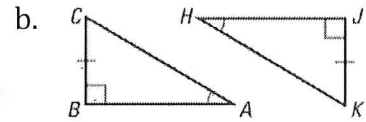
QUESTIONS:



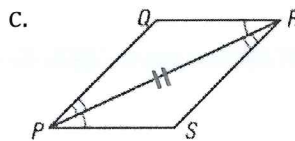
A4. Decide if there is enough information to prove that the two triangles are congruent. If there is, give a congruence statement for the triangles and the reason(s) for the congruence.



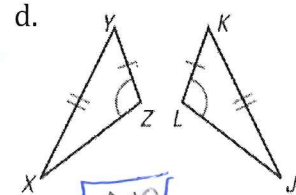
Yes
AAS
 $\triangle ABC \cong \triangle QRS$



Yes AAS
 $\triangle ABC \cong \triangle HJK$



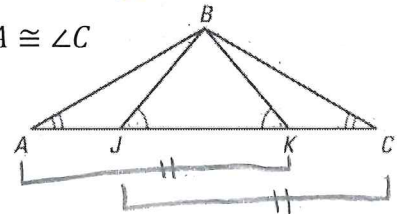
Yes reflexive & ASA
 $\triangle PQR \cong \triangle RSP$



No
SSA DNE
 $\triangle \cong \triangle$



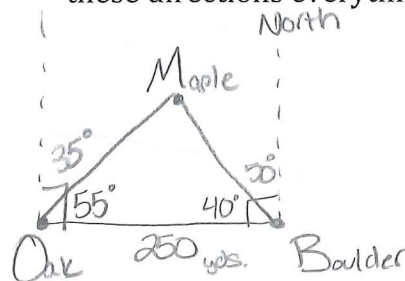
A5. Given: $\overline{AK} \cong \overline{CJ}$, $\angle BJK \cong \angle BKJ$, $\angle A \cong \angle C$
Prove: $\triangle ABK \cong \triangle CBJ$



- 1) $\overline{AK} \cong \overline{CJ}$ 1) Given
- 2) $\angle BJK \cong \angle BKJ$ 2) Given
- 3) $\angle A \cong \angle C$ 3) Given
- 4) $\triangle ABK \cong \triangle CBJ$ 4) ASA



A6. You are making a map for an orienteering race. Participants start at a large oak tree, find a boulder 250 yards due east of the tree, and then find a maple tree that is 50° west of north of the boulder and 35° east of north of the oak tree. Can you locate the maple tree from these directions everytime? Explain.



Yes because the \triangle formed by the objects create a unique \triangle by ASA