Name: Key Date: _____ Period: _____

5.6 Proving Triangles Congruent by AAS & ASA CYU

☑ *Use when you get it right all by yourself*

S *Use when you did it all by yourself, but made a silly mistake*

H *Use when you could do it alone with a little help from teacher or peer*

G *Use when you completed the problem in a group*

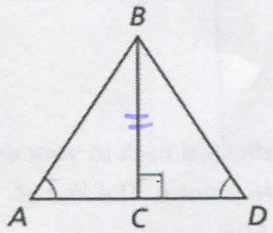
X *Use when a question was attempted but wrong (get help)*

N *Use when a question was not even attempted*

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
AAS Congruence Theorem	1 – 3, 7, 8	4, 9	6, 9
ASA Congruence Theorem	1 – 3, 7, 8	5, 9	6, 9
Proofs		10, 11, 12	10, 11, 12

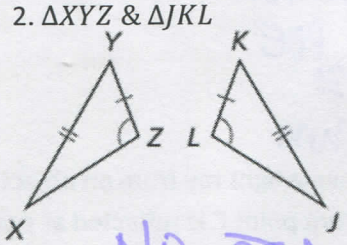
Decide whether enough information is given to prove that the triangles are congruent. If so, state the theorem you would use.

1. ΔABC & ΔDBC



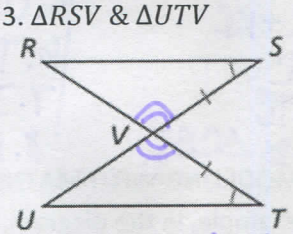
yes AAS ≅ Thm

2. ΔXYZ & ΔJKL



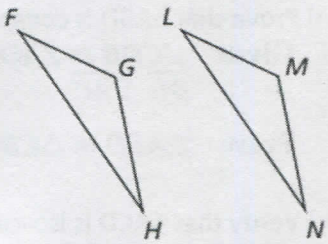
NO ~~SSA~~

3. ΔRSV & ΔUTV



yes ASA ≅ Thm

State the third congruence statement that is needed to prove that $\Delta FGH \cong \Delta LMN$ *using the given theorem.*



4. **Use the AAS Congruent Theorem.** $\overline{GH} \cong \overline{MN}, \angle G \cong \angle M,$ ∠F ≅ ∠L

5. **Use the ASA Congruent Theorem.** $\overline{FG} \cong \overline{LM}, \angle G \cong \angle M,$ ∠F ≅ ∠L

Decide whether you can use the given information to prove that $\Delta ABC \cong \Delta DEF$. *Explain your reasoning.*

6. $\angle C \cong \angle F, \overline{AB} \cong \overline{DE}, \overline{BC} \cong \overline{EF}$

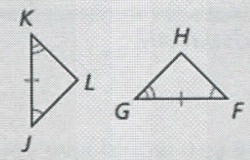
NO; ~~SSA~~

7. $\angle B \cong \angle E, \angle C \cong \angle F, \overline{AC} \cong \overline{ED}$

NO; $\overline{AC} \ncong \overline{DE}$

Error Analysis: *Describe and correct the error.*

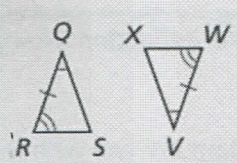
8. ✗



△JKL ≅ △FHG by the ASA Congruence Theorem.

△JKL ≅ △FGH by ASA ≅ Thm

9. ✗



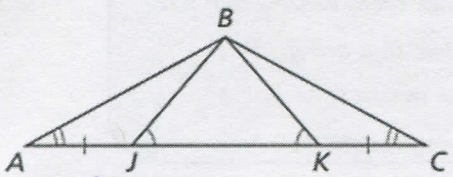
△QRS ≅ △VWX by the AAS Congruence Theorem.

△QRS ≅ △VWX by ASA ≅ Thm

Use a two-column proof to prove that the triangles are congruent using the ASA or AAS Congruent Theorems.

10. **Given** $\overline{AJ} \cong \overline{KC}, \angle BJK \cong \angle BKJ, \angle A \cong \angle C$

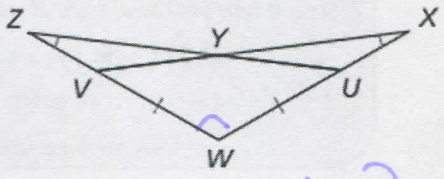
Prove $\triangle ABK \cong \triangle CBJ$



Statements	Reasons
1. $\overline{AJ} \cong \overline{KC}$; $\angle BJK \cong \angle BKJ$, $\angle A \cong \angle C$	1. Given
2. $AJ = KC$	2. If $\cong \Rightarrow =$
3. $JC = JK + KC$; $AK = KC + JK$	3. Seg Add Post
4. $AK = KC + JK$	4. Substitution POE
5. $AK = JK + KC$	5. Commutative POA
6. $AK = JC$	6. Transitive POE
7. $\overline{AK} \cong \overline{JC}$	7. If $= \Rightarrow \cong$
8. $\triangle ABK \cong \triangle CBJ$	8. ASA $\cong$ Thm

11. **Given** $\overline{VW} \cong \overline{UW}, \angle X \cong \angle Z$

Prove $\triangle XWV \cong \triangle ZWU$



Statements	Reasons
1. $\overline{VW} \cong \overline{UW}$; $\angle X \cong \angle Z$	1. Given
2. $\angle W \cong \angle W$	2. Reflexive POC
3. $\triangle XWV \cong \triangle ZWU$	3. AAS $\cong$ Thm

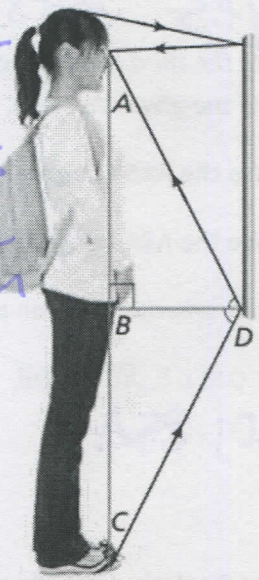
12. **MODELING WITH MATHEMATICS** When a light ray from an object meets a mirror, it is reflected back to your eye. For example, in the diagram, a light ray from point C is reflected at point D and travels back to point A. The *law of reflection* states that the angle of incidence, $\angle CDB$, is congruent to the angle of reflection, $\angle ADB$.

a) Prove that ΔABD is congruent to ΔCBD.

Given $\angle CDB \cong \angle ADB$, $\overline{DB} \perp \overline{AC}$

Prove $\triangle ABD \cong \triangle CBD$

Statements	Reasons
1. $\angle CDB \cong \angle ADB$, $\overline{DB} \perp \overline{AC}$	1. Given
2. $\angle ABD$ & $\angle CBD$ RR $\angle$'s	2. Def of $\perp \Leftrightarrow$
3. $\angle ABD \cong \angle CBD$	3. Def of R $\angle$'s
4. $\overline{BD} \cong \overline{BD}$	4. Reflexive POC
5. $\triangle ABD \cong \triangle CBD$	5. ASA $\cong$ Thm



b) Verify that ΔACD is isosceles.

$\triangle ABD \cong \triangle CBD$

CPCTC $\Rightarrow \overline{AD} \cong \overline{CD}$

So $\triangle ACD$ is isosceles by definition

c) Does moving away from the mirror have any effect on the amount of his or her reflection a person sees? Explain.

no, $\triangle$ is always isosceles.

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.