Name: **Key**　　Date: _____　Period: _____

5.3 Proving Triangles Congruent by SAS 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
Included angles	1 - 3		
SAS Congruence Theorem	4, 5, 8	6, 7, 9	
Triangle Congruence Statement	12	13	
SAS Proofs	10	11	14

Name the included angle between the pair of sides given.
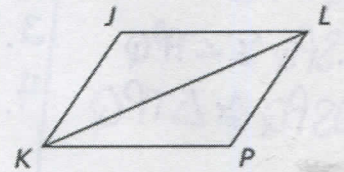
1. $\overline{JK}$ & $\overline{KL}$
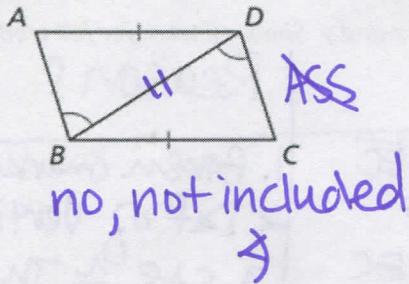
∡JKL

2. $\overline{PK}$ & $\overline{KL}$

∡PKL

3. $\overline{LP}$ & $\overline{KL}$

∡KLP

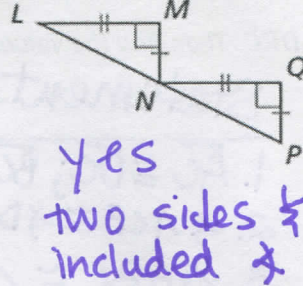*Decide whether enough information is given to prove that the triangles are congruent using the SAS Congruence Theorem. Explain.*
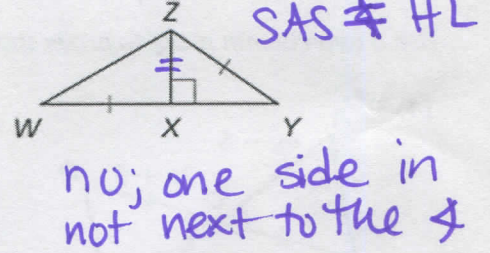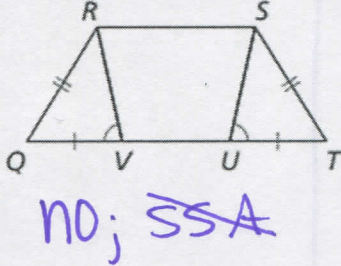
4. Δ ABD & ΔCDB

A̶S̶S̶

no, not included ∡

5. Δ LMN & ΔNQP

yes
two sides &
included ∡

6. Δ YXZ & ΔWXZ

SAS ≠ HL

no; one side in
not next to the ∡

7. Δ QRV & ΔTSU

no; SSA

8. Δ EFH & ΔGHF

yes

TWO sides &
included ∡

9. Δ KLM & ΔMNK

no　SSA
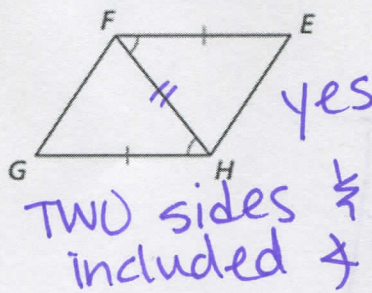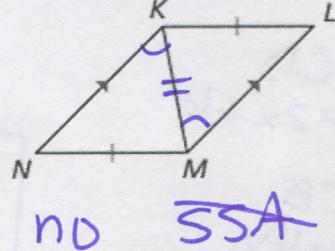
Use the given information to name two triangles that are congruent. Explain your reasoning.

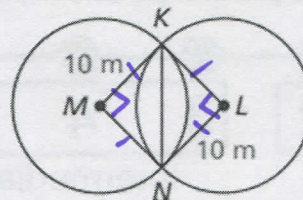10. ∠SRT ≅ ∠URT, and R is the center of the circle.
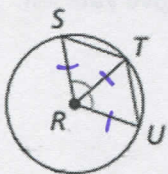
ΔSRT ≅ ΔURT
Reflexive
Radius Definition
SAS THM

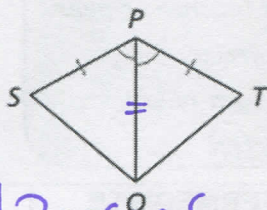11. $\overline{MK} \perp \overline{MN}, \overline{KL} \perp \overline{NL}$, and M and L are centers of circles.

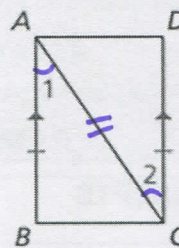ΔNMK ≅ ΔNLK
Radius Def.
⊥ → Rt ∡'s
SAS THM

Write a two-column proof.

10. **Given** $\overline{PQ}$ bisects $\angle SPT, \overline{SP} \cong \overline{TP}$

    Prove $\triangle SPQ \cong \triangle TPQ$

11. **Given** $\overline{AB} \cong \overline{CD}, \overline{AB} \parallel \overline{CD}$

    Prove $\triangle ABC \cong \triangle CDA$

Statements	Reasons
1. $\overline{SP} \cong \overline{TP}$; $\overline{PQ}$ bisects $\angle SPT$	1. given
2. $\overline{PQ} \cong \overline{PQ}$	2. Reflexive Property of $\cong$
3. $\angle SPQ \cong \angle TPQ$	3. Def of $\angle$ bisector
4. $\triangle SPQ \cong \triangle TPQ$	4. SAS $\cong$ Thm

Statements	Reasons
1. $\overline{AB} \cong \overline{CD}$; $\overline{AB} \parallel \overline{CD}$	1. Given
2. $\overline{AC} \cong \overline{AC}$	2. Reflexive POC
3. $\angle 1 \cong \angle 2$	3. AIA Thm
4. $\triangle ABC \cong \triangle CDA$	4. SAS $\cong$ Thm

Use a two-column proof to prove that $\triangle ABC \cong \triangle DEC$. Then find the values of x and y. Show all work for full credit.

14.

(Figure: triangles with labels A, $4y-6$, C, $2x+6$, D, B, $3y+1$, $4x$, E)
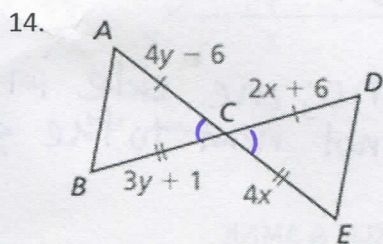
Statements	Reasons
1. $\overline{AC} \cong \overline{DC}$; $\overline{BC} \cong \overline{EC}$	1. Given (marked)
2. $\angle ACB \cong \angle DCE$	2. Def of Vertical $\angle$'s
3. $\triangle ABC \cong \triangle DEC$	3. SAS $\cong$ Thm

$AC = CD$
$4y - 6 = 2x + 6$

$BC = CE$
$3y + 1 = 4x$

$\boxed{\begin{array}{l} X = 4 \\ y = 5 \end{array}}$

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.

1 2	3 4 5	6 7	8
Basic	Intermediate	Advanced	Solved ALL!