

5.7 Overlapping Congruent Triangle Proofs DAY THREE 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

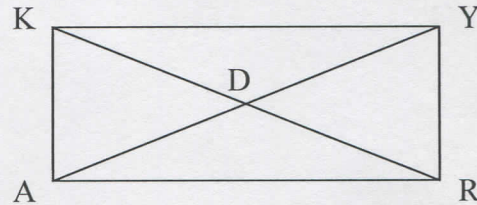
| CONCEPTS | BASIC | INTERMEDIATE | ADVANCED |
|----------------------------|---------|--------------|----------|
| Reflexive POC | 1 - 6 | | |
| SAS, SSS, AAS, HL, ASA | 1 - 6 | | |
| CPCTC | 1, 5, 6 | | |
| Def of Perpendicular Lines | 1, 3, 5 | | |
| Def of Midpoint | 3 | | |

Create a two-column proof on your own paper. Label the statements and reasons columns and be sure to number each step of the proof. Use correct notation. Only mark your diagram after writing the information in your proof. **It might help to redraw your diagram as separate triangles relevant to the proof.**

1. Given: $\overline{KA} \perp \overline{AR}$; $\overline{YR} \perp \overline{AR}$; $\angle AKR \cong \angle RYA$

Prove: $\overline{DK} \cong \overline{DY}$

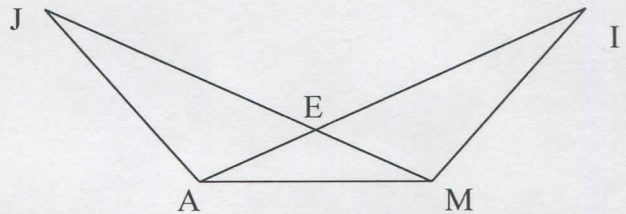
orange



2. Given: $\angle JAM \cong \angle IMA$; $\overline{JE} \cong \overline{IE}$; $\overline{AE} \cong \overline{ME}$

Prove: $\triangle JAM \cong \triangle IMA$

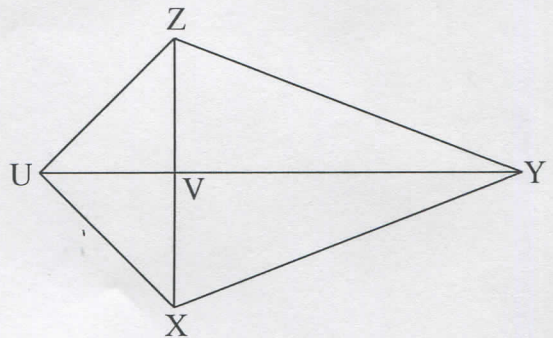
purple



3. Given: V is the midpoint of \overline{ZX} ; $\overline{UY} \perp \overline{ZX}$

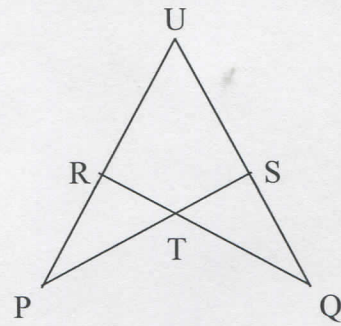
Prove: $\triangle ZUY \cong \triangle XUY$

magenta



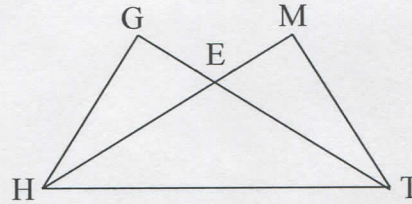
4. Given: $\angle PRT \cong \angle QST$; $\overline{RT} \cong \overline{ST}$; $\overline{RU} \cong \overline{US}$
 Prove: $\triangle URQ \cong \triangle USP$

Blue



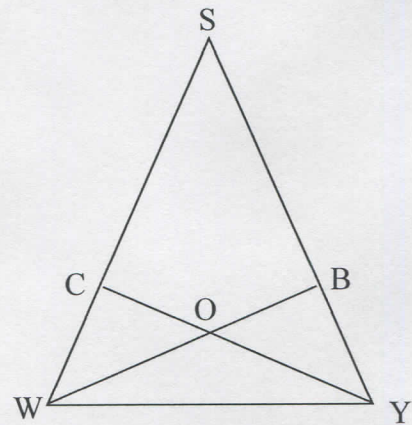
5. Given: $\overline{HG} \perp \overline{GT}$; $\overline{TM} \perp \overline{MH}$; $\angle GTH \cong \angle MHT$
 Prove: $\overline{GE} \cong \overline{ME}$

Red



6. Given: $\overline{WS} \cong \overline{YS}$; $\overline{WC} \cong \overline{YB}$
 Prove: $\overline{CO} \cong \overline{BO}$

Pink



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

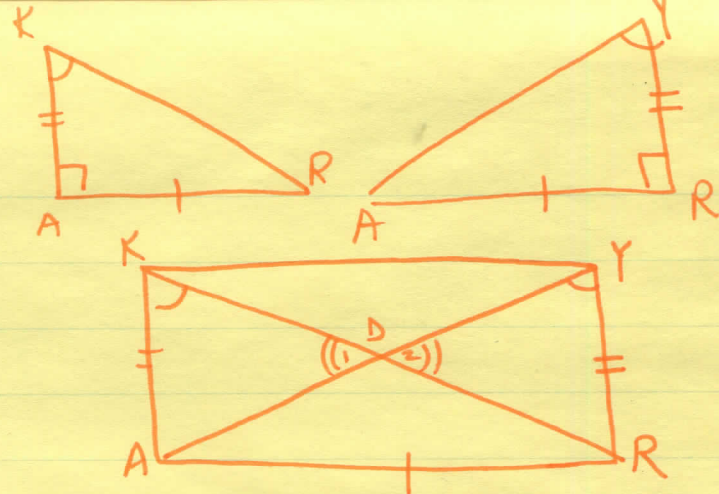
Rate your mastery level!

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

● — ● — ● — ● — ● — ● — ●

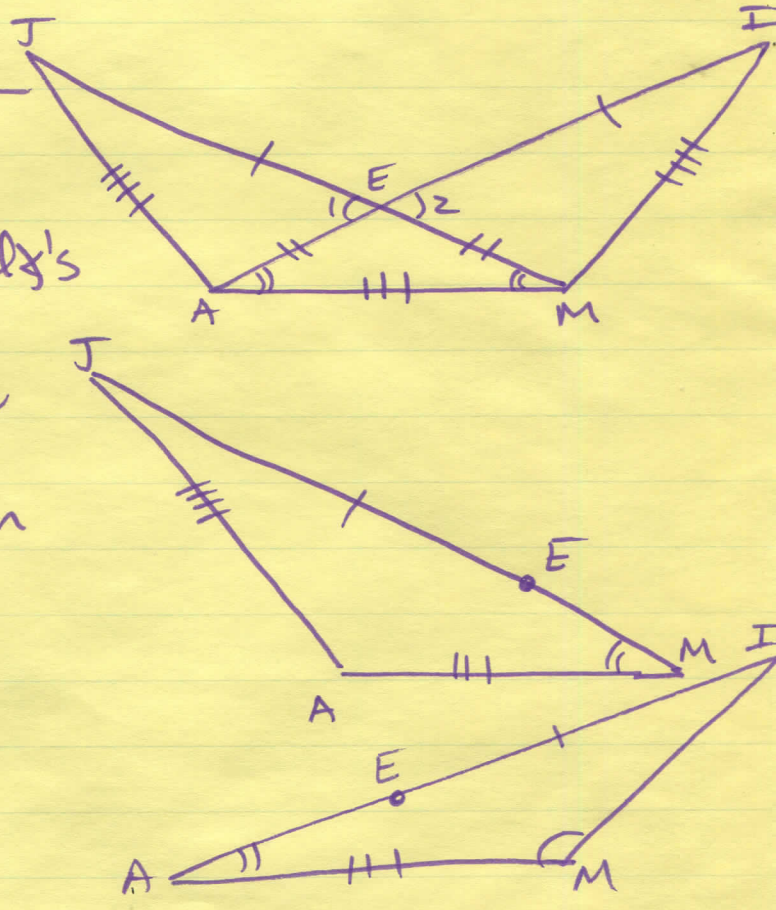
| | | | | | | | |
|-------|---|--------------|---|---|----------|---|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Basic | | Intermediate | | | Advanced | | Solved ALL! |

➔



| Statements | Reasons |
|---|-----------------------------------|
| 1) $\overline{KA} \perp \overline{AR}; \overline{YR} \perp \overline{AR};$ $\angle AKR \cong \angle RYA$ | 1) Given |
| 2) $\angle KAR \cong \angle YRA$ R Rt | 2. Def of $\perp \Leftrightarrow$ |
| 3) $\overline{AR} \cong \overline{AR}$ | 3. Reflexive POC |
| 4) $\triangle KAR \cong \triangle YRA$ | 4. AAS \cong Thm |
| 5) $\overline{KA} \cong \overline{YR}$ | 5. CPCTC |
| 6) $\angle 1 \cong \angle 2$ | 6. Def. of vertical \angle 's |
| 7) $\triangle KDA \cong \triangle YDR$ | 7. AAS \cong Thm |
| 8) $\overline{DK} \cong \overline{DY}$ | 8. CPCTC |

| Statements | Reasons |
|---|--------------------------------|
| 1. $\angle JAM \cong \angle IMA; \overline{JE} \cong \overline{IE},$ $\overline{AE} \cong \overline{ME}$ | 1. Given |
| 2. $\angle 1 \cong \angle 2$ | 2. Def of vertical \angle 's |
| 3. $\triangle JAE \cong \triangle IME$ | 3. SAS \cong Thm |
| 4. $\overline{AM} \cong \overline{AM}$ | 4. Reflexive POC |
| 5. $\overline{JM} \cong \overline{JA}$ | 5. CPCTC |
| 6. $\triangle JAM \cong \triangle IMA$ | 6. SAS \cong Thm |



AAS if you used if $\triangle J \Rightarrow \triangle I$.
Isosceles $\triangle JAM$

3) Statements

Reasons

1. Vis the mdpt of \overline{ZX} ;
 $UY \perp ZX$

1. Given

2. $\overline{UX} \cong \overline{UZ}$

2. Def of mdpt

3. $\angle 1, \angle 2, \angle 3, \angle 4$ RRT \angle 's

3. Def of $\perp \leftrightarrow$

4. $\overline{UY} \cong \overline{UY}$

4. Reflexive POC

5. $\triangle UYZ \cong \triangle UYX$

5. SAS \cong Thm

6. $\overline{UZ} \cong \overline{UX}$

6. CPCTC

7. $\overline{UY} \cong \overline{UY}$

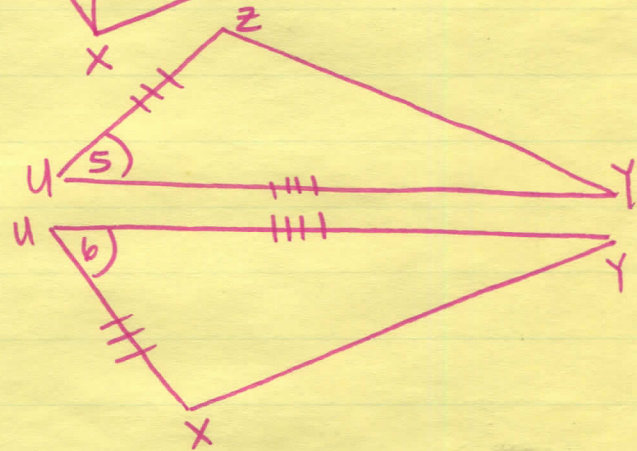
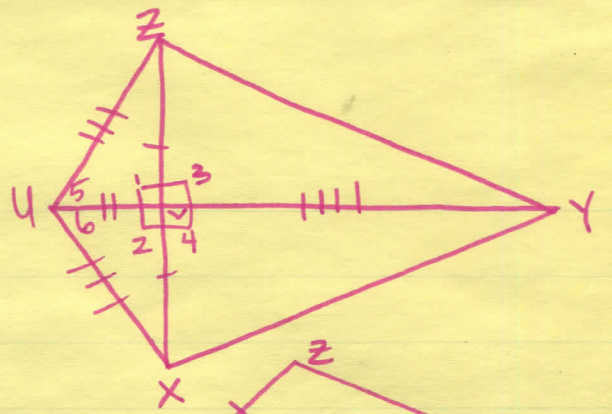
7. Reflexive POC

8. $\angle 5 \cong \angle 6$

8. CPCTC

9. $\triangle ZUY \cong \triangle XUY$

9. SAS \cong Thm



4) Statements

Reasons

1. $\angle PRT \cong \angle QST$; $\overline{RT} \cong \overline{ST}$
 $\overline{RU} \cong \overline{US}$

1. Given

2. $\angle 1 \cong \angle 2$

2. Def of vertical \angle 's

3. $\triangle RTP \cong \triangle STQ$

3. ASA \cong Thm

4. $\angle P \cong \angle Q$

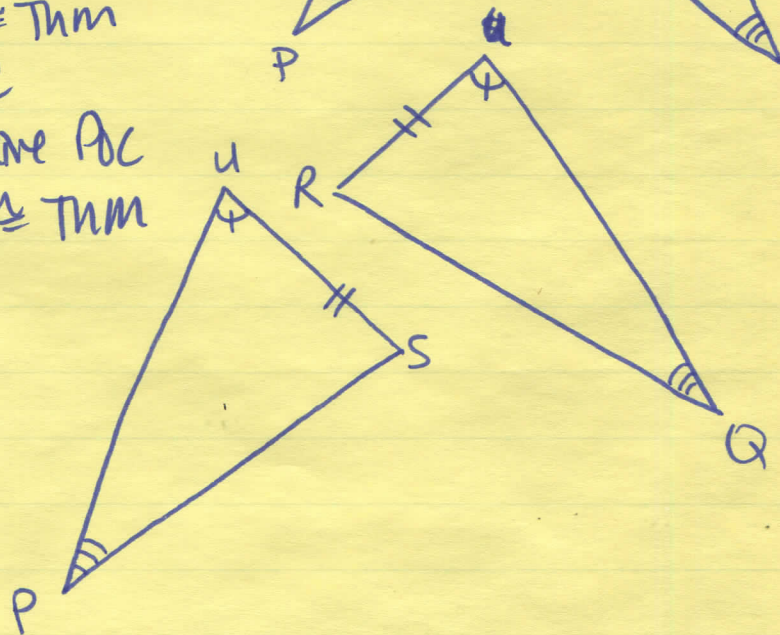
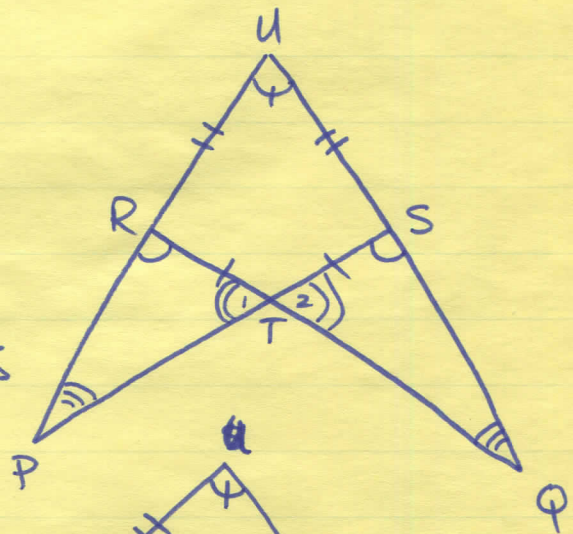
4. CPCTC

5. $\angle U \cong \angle U$

5. Reflexive POC

6. $\triangle URQ \cong \triangle USP$

6. AAS \cong Thm

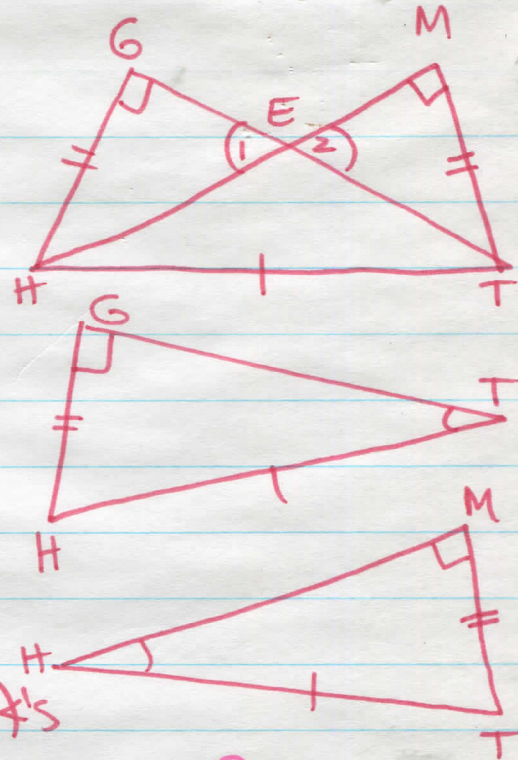


5) Statements

- 1) $\overline{HG} \perp \overline{GT}$; $\overline{TM} \perp \overline{MT}$;
 $\angle GTH \cong \angle MHT$
- 2) $\triangle G \cong \triangle M$ R.R.T's
- 3) $\triangle G \cong \triangle M$
- 4) $\overline{HT} \cong \overline{HT}$
- 5) $\triangle GTH \cong \triangle MHT$
- 6) $\overline{GH} \cong \overline{MT}$
- 7) $\angle 1 \cong \angle 2$
- 8) $\triangle GEH \cong \triangle MET$
- 9) $\overline{GE} \cong \overline{ME}$

Reasons

1. Given
2. Def of $\perp \iff$
3. If R.T's $\implies \cong$.
4. Reflexive POC
5. AAS \cong Thm
6. CPCTC
7. Def of vertical \angle 's
8. AAS \cong Thm
9. CPCTC



b) Statements

1. $\overline{WS} \cong \overline{YS}$; $\overline{WC} \cong \overline{YB}$
2. $\angle CWY \cong \angle SYW$
3. $\overline{WY} \cong \overline{WY}$
4. $\triangle CWY \cong \triangle SYW$
5. $\angle S \cong \angle S$
6. $\overline{WB} \cong \overline{CY}$
7. $\angle 1 \cong \angle 2$
8. $\angle 3 \cong \angle 4$
9. $\triangle CWY \cong \triangle SYW$
10. $\overline{CW} \cong \overline{BY}$

Reasons

1. Given
2. If $\triangle \implies \triangle$
3. Reflexive POC
4. SAS \cong Thm
5. Reflexive POC
6. CPCTC
7. Def of vertical \angle 's
8. CPCTC
9. AAS \cong Thm
10. CPCTC

