4-3 Using CPCTC

Geo. std. 5.0

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CPCTC stands for:

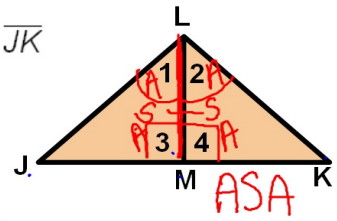
Corresponding Parts of Congruent Triangles are Congruent.

CPCTC can only be used to state that sides or angles of 2 triangles are congruent **after** proving triangles congruent.

ex. 1

Given: $\overline{LM}$ bisects $\angle JLK$, $\overline{LM} \perp \overline{JK}$

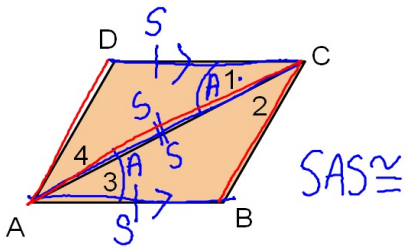
Prove: $\overline{JL} \cong \overline{KL}$



Statements	Reasons
1. $\overline{LM}$ bisects $\angle JLK$, $\overline{LM} \perp \overline{JK}$	(1) Given
2. $\angle 1 \cong \angle 2$	(2) defn $\angle$ bisector
3. $\overline{LM} \cong \overline{LM}$	(3) reflexive
4. $\angle 3$ & $\angle 4$ are rt $\angle$s	(4) $\perp$ lines make rt $\angle$s
5. $\angle 3 \cong \angle 4$	(5) all rt $\angle$s $\cong$.
(6) $\triangle JLM \cong \triangle KLM$	(6) ASA $\cong$
7. $\overline{JL} \cong \overline{KL}$	7. CPCTC

ex. 2 Given: $\overline{DC} \parallel \overline{AB}$, $\overline{DC} \cong \overline{BA}$

Prove: $\overline{AD} \parallel \overline{BC}$



Statements	Reasons
1) $\overline{DC} \parallel \overline{AB}$, $\overline{DC} \cong \overline{BA}$	1) Given
2) $\angle 1 \cong \angle 3$	2) if lines ∥, alt int ∠s ≅
3) $\overline{AC} \cong \overline{CA}$	3) reflexive
4) $\triangle ADC \cong \triangle CBA$	4) SAS ≅
5) $\angle 4 \cong \angle 2$	5) CPCTC
6) $\overline{AD} \parallel \overline{BC}$	6) if alt int ∠s ≅, lines ∥