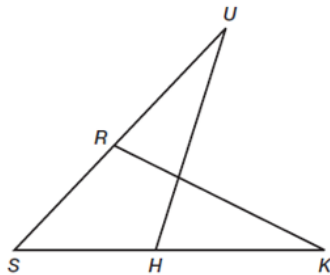


Proving Triangles Congruent (including CPCTC)

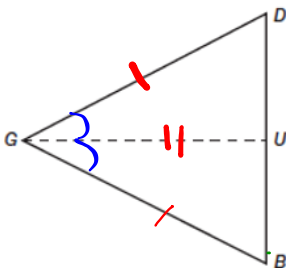
Once you conclude two triangles are congruent, then you can also conclude that **corresponding parts of congruent triangles are congruent** (CPCTC). CPCTC can be used as a justification AFTER you have proved two triangles are congruent. Look at the example proof below:



Statements	Reasons
1. $\overline{SU} \cong \overline{SK}$	1. Given
2. $\overline{SR} \cong \overline{UR}$	2. Given
3. $\angle S \cong \angle U$	3. Reflexive Property
4. $\triangle SRH \cong \triangle URK$	4. SAS
5. $\angle H \cong \angle K$	5. CPCTC

Prove the Isosceles Base Angles Theorem

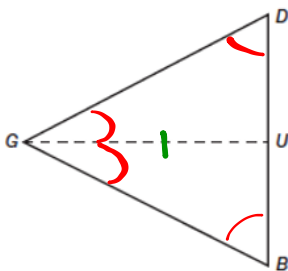
a. Given: $\overline{GB} \cong \overline{GD}$, \overline{GU} bisects $\angle DGB$
 Prove: $\angle B \cong \angle D$



Statements	Reasons
1. $\overline{GB} \cong \overline{GD}$	1. Given
2. \overline{GU} bisects $\angle DGB$	2. Given
3. $\angle DGU \cong \angle BGU$	3. Definition of bisects
4. $\overline{GU} \cong \overline{GU}$	4. Reflexive Prop.
5. $\triangle DGU \cong \triangle BGU$	5. SAS
6. $\angle B \cong \angle D$	6. CPCTC

Prove the Converse of the Isosceles Base Angles Theorem:

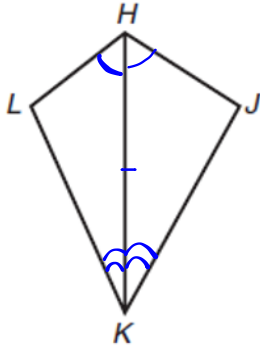
b. Given: $\angle B \cong \angle D$, \overline{GU} bisects $\angle DGB$
 Prove: $\overline{GB} \cong \overline{GD}$



Statements	Reasons
1. $\angle B \cong \angle D$	1. Given
2. \overline{GU} bisects $\angle DGB$	2. Given
3. $\angle DGU \cong \angle BGU$	3. Def of bisects
4. $\overline{GU} \cong \overline{GU}$	4. Reflexive
5. $\triangle DGU \cong \triangle BGU$	5. AAS
6. $\overline{GB} \cong \overline{GD}$	6. CPCTC

c. Given: $\angle JHK \cong \angle LHK$, $\angle JKH \cong \angle LKH$

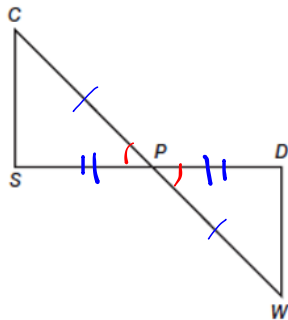
Prove: $\overline{JK} \cong \overline{LK}$



$\angle JHK \cong \angle LHK$	Given
$\angle JKH \cong \angle LKH$	Given
$\overline{HK} \cong \overline{HK}$	Reflexive Prop.
$\triangle HLK \cong \triangle HJK$	ASA
$\overline{JK} \cong \overline{LK}$	CPCTC

d. Given: \overline{CW} and \overline{SD} bisect each other

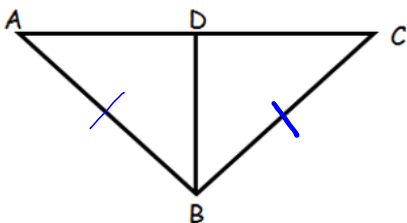
Prove: $\overline{CS} \cong \overline{WD}$



\overline{CW} and \overline{SD} bisect each other	Given
$\overline{CP} \cong \overline{WP}$	Def of bisects
$\overline{SP} \cong \overline{DP}$	Def of bisects
$\angle CPS \cong \angle WPD$	Vertical Angles
$\triangle CPS \cong \triangle WPD$	SAS
$\overline{CS} \cong \overline{WD}$	CPCTC

e. Given: $\overline{AB} \cong \overline{CB}$, D is the midpoint of \overline{AC}

Prove: $\angle A \cong \angle C$



$\overline{AB} \cong \overline{CB}$	Given
D is mdpt. of \overline{AC}	Given
$\overline{AD} \cong \overline{DC}$	Def of midpoint
$\overline{BD} \cong \overline{BD}$	Reflexive
$\triangle ADB \cong \triangle CDB$	SSS
$\angle A \cong \angle C$	CPCTC