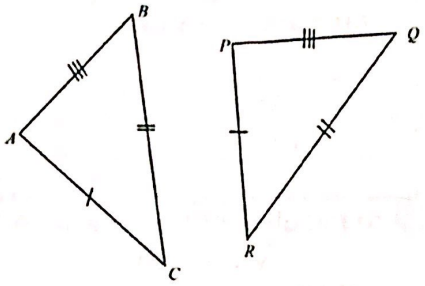
Key

Unit 2 Lesson 8 – CPCTC

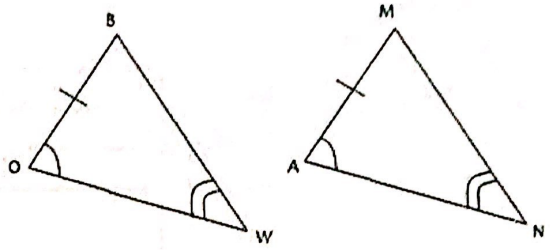
Corresponding Parts of Congruent Triangles are Congruent (CPCTC) – This **justification** allows you to prove additional parts of congruent triangles are congruent AFTER you have shown the triangles are congruent. In the proof, you use a combination of 3 pairs of congruent segments or angles to prove two triangles are congruent. Once you have shown the triangles are congruent using one of the 5 shortcuts (SSS, SAS, ASA, AAS, HL), you can now say that other corresponding (matching) parts of the triangles are congruent. **CPCTC must FOLLOW the congruent triangles statement.**

Prove: $\angle BCA \cong \angle QRP$



$\Delta ABC \cong \Delta PQR$	SSS
$\angle BCA \cong \angle QRP$	CPCTC

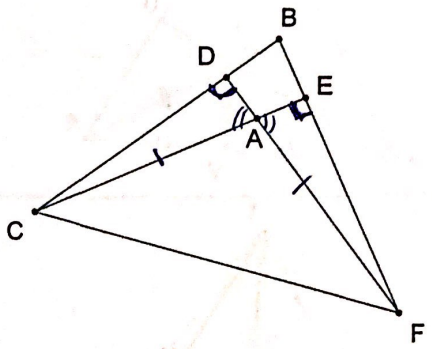
Prove: $\overline{BW} \cong \overline{MN}$



$\Delta BOW \cong \Delta MAN$	AAS
$\overline{BW} \cong \overline{MN}$	CPCTC

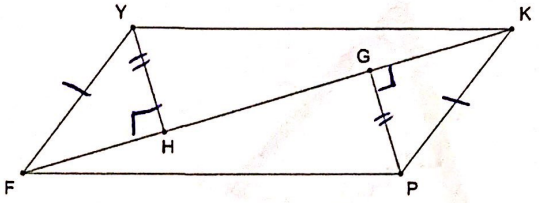
1. Given: $\angle CDF$ and $\angle FEA$ are right angles
   $\overline{CA} \cong \overline{FA}$
   Prove: $\overline{CD} \cong \overline{FE}$

$\angle CDF$ and $\angle FEA$ are right $\angle$s	Given
$\angle CDF \cong \angle FEA$	all Rt. $\angle$s are $\cong$
$\overline{CA} \cong \overline{FA}$	Given
$\angle DAC \cong \angle EAF$	Vertical angles are congruent.
$\Delta CAD \cong \Delta FEA$	AAS
$\overline{CD} \cong \overline{FE}$	CPCTC



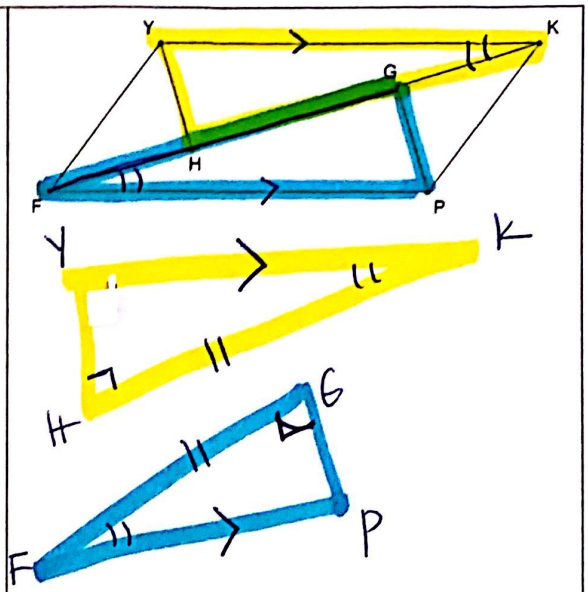
2. Given: $\angle FHY$ and $\angle KGP$ are right angles
   $\overline{FY} \cong \overline{PK}$; $\overline{HY} \cong \overline{GP}$
   Prove: $\angle YFH \cong \angle PKG$

$\angle FHY$ and $\angle KGP$ are Rt $\angle$s	Given
$\angle FHY \cong \angle KGP$	All right angles are congruent.
$\overline{FY} \cong \overline{PK}$, $\overline{HY} \cong \overline{GP}$	Given
$\Delta FHY \cong \Delta KGP$	HL
$\angle YFH \cong \angle PKG$	CPCTC



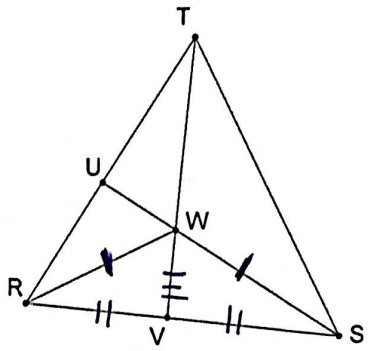
3. Given: $\overline{YK} \parallel \overline{PF}$; $\overline{FG} \cong \overline{KH}$
$\angle PGH$ and $\angle YHG$ are right angles
Prove: $\overline{GP} \cong \overline{HY}$

$\overline{YK} \parallel \overline{PF}$	Given
$\angle YKF \cong \angle PFG$	if 2 $\parallel$ lines are cut by a transversal then alternate interior $\angle$s are congruent.
$\overline{FG} \cong \overline{KH}$	Given
$\angle PGH$ and $\angle YHG$ are right $\angle$s	Given
$\angle PGH \cong \angle YHG$	all Rt $\angle$s are $\cong$.
$\triangle YHK \cong \triangle GPF$	ASA
$\overline{GP} \cong \overline{HY}$	CPCTC



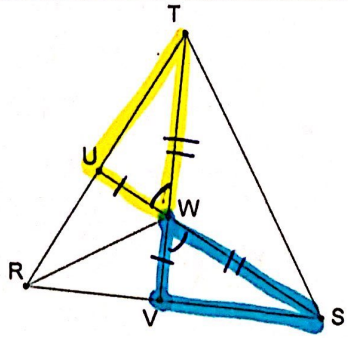
4. Given: V is the midpoint of $\overline{RS}$
$\overline{RW} \cong \overline{SW}$
Prove: $\angle RWV \cong \angle SWV$

V is the Midpoint of $\overline{RS}$	Given
$\overline{RV} \cong \overline{SV}$	Definition of Midpoint
$\overline{RW} \cong \overline{SW}$	Given
$\overline{WV} \cong \overline{WV}$	Reflexive Prop. of $\cong$
$\triangle RWV \cong \triangle SWV$	SSS
$\angle RWV \cong \angle SWV$	CPCTC



Given: $\overline{UW} \cong \overline{VW}$; $\overline{WT} \cong \overline{WS}$
Prove: $\overline{UT} \cong \overline{VS}$

$\overline{UW} \cong \overline{VW}$, $\overline{WT} \cong \overline{WS}$	Given
$\angle UWT \cong \angle VWS$	vertical $\angle$s are $\cong$
$\triangle UWT \cong \triangle VWS$	SAS
$\overline{UT} \cong \overline{VS}$	cpctc



6. Given: $\overline{PR} \parallel \overline{SW}$; $\overline{RL} \parallel \overline{WT}$; $\overline{PR} \cong \overline{SW}$
Prove: $\overline{RL} \cong \overline{WT}$

$\overline{PR} \parallel \overline{SW}$; $\overline{RL} \parallel \overline{WT}$	GIVEN
$\angle RPL \cong \angle WST$ $\angle RLP \cong \angle WTS$	If 2 $\parallel$ lines are cut by a transversal then corresponding $\angle$s are $\cong$.
$\overline{PR} \cong \overline{SW}$	Given
$\triangle RPL \cong \triangle WST$	AAS
$\overline{RL} \cong \overline{WT}$	CPCTC