Geometry A
Triangle Proofs with CPCTC Notes

Name : _____
Date : _____ Period : _____

- I can identify corresponding parts of congruent triangles.
- I can use CPCTC to prove sides and angles are congruent in triangles.

Given $\Delta MPO \cong \Delta RST$, complete the following statements:

1. $\angle P \cong \angle$_____
2. $\angle T \cong \angle$_____
3. $\angle R \cong \angle$_____
4. $\overline{MO} \cong$ _____
5. $\overline{SR} \cong$ _____
6. $\overline{ST} \cong$ _____

When you know triangles are congruent, and you state that corresponding parts are congruent (like you just did when you answered questions 1 – 6 above), you are using a property called **CPCTC**, which is a quick and easy way of saying :

C_____

P_____

C_____

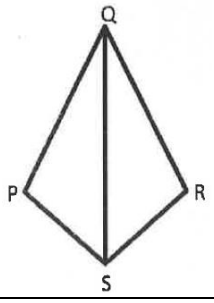
T_____

C_____

Example 1 :

Given : $\overline{PQ} \cong \overline{QR}$, $\overline{PS} \cong \overline{SR}$

Prove : $\angle PQS \cong \angle RQS$



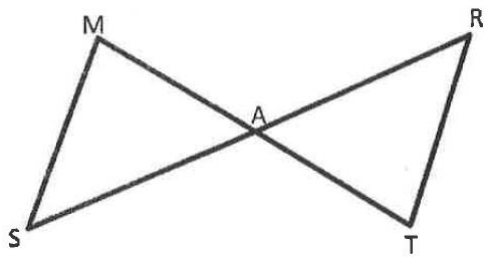
Statements	Reasons
1. $\overline{PQ} \cong \overline{QR}$	1.
2. $\overline{PS} \cong \overline{SR}$	2.
3.	3. Reflexive Property
4. $\Delta PQS \cong \Delta RQS$	4.
5. $\angle PQS \cong \angle RQS$	5.

Example 2 :

Given : A is the midpoint of $\overline{MT}$

A is the midpoint of $\overline{SR}$

Prove : ∠M ≅ ∠T



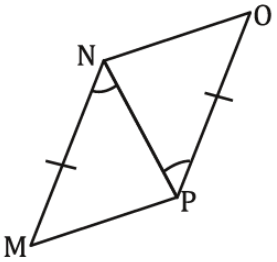
Statements	Reasons
1. A is the midpoint of $\overline{MT}$	1.
2.	2. Definition of Midpoint
3. A is the midpoint of $\overline{SR}$	3.
4.	4. Definition of Midpoint
5.	5. Vertical Angles Theorem
6. ΔMAS ≅ ΔTAR	6.
7.	7.

Example 3 :

Given : ∠MNP ≅ ∠OPN

$\overline{MN} \cong \overline{OP}$

Prove : $\overline{MP} \cong \overline{NO}$



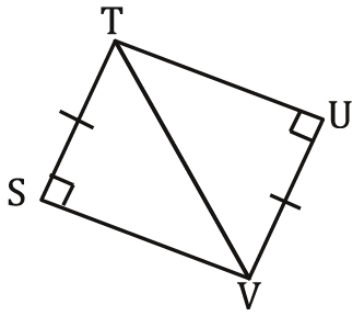
Statements	Reasons
1.	1. Given
2. $\overline{MN} \cong \overline{OP}$	2.
3.	3. Reflexive Property
4. ΔMNP ≅ ΔOPN	4.
5. $\overline{MP} \cong \overline{NO}$	5.

Example 4 :

Given : $\overline{ST} \cong \overline{UV}$

∠TSV and ∠VUT are right angles

Prove : ∠SVT ≅ ∠UTV



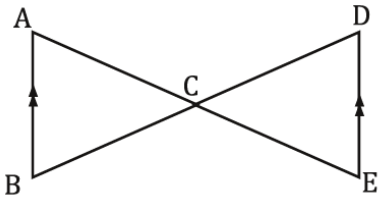
Statements	Reasons
1.	1.
2.	2.
3. ΔTSV and ΔVUT are right triangles	3. Def. of right triangle
4. $\overline{TV} \cong \overline{TV}$	4.
5. ΔTSV ≅ ΔVUT	5.
6.	6.

Example 5 :

Given : $\overline{AB} \parallel \overline{DE}$

C is the midpoint of $\overline{BD}$

Prove : $\overline{AC} \cong \overline{EC}$



Statements	Reasons
1. $\overline{AB} \parallel \overline{DE}$	1.
2. ∠CAB ≅ ∠CED	2.
3.	3. Given
4.	4. Definition of Midpoint
5. ∠ACB ≅ ∠ECD	5.
6. ΔBAC ≅ ΔEDC	6.
7. $\overline{AC} \cong \overline{EC}$	7.