Using Corresponding Parts of Congruent Triangles

4-7

To use triangle congruence and corresponding parts of congruent triangles to solve problems and to prove that parts of two triangles are congruent.

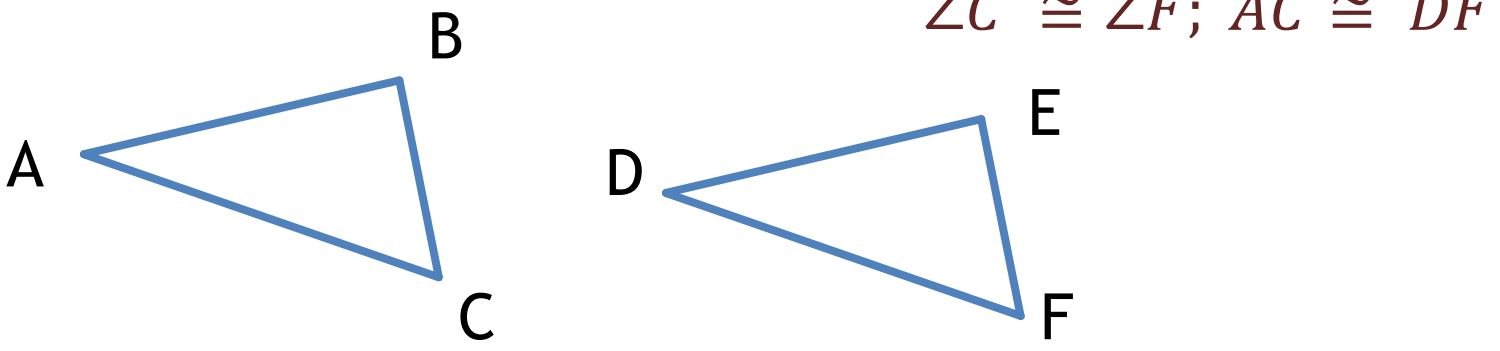
Objective

VOCABULARY

CPCTC – Corresponding parts of congruent triangles are congruent.

If $\Delta ABC \cong \Delta DEF$, then:

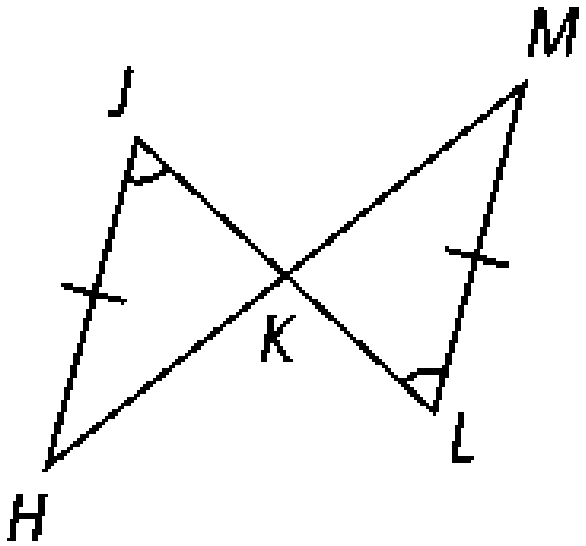
$\angle A \cong \angle D$; $\overline{AB} \cong \overline{DE}$
$\angle B \cong \angle E$; $\overline{BC} \cong \overline{EF}$
$\angle C \cong \angle F$; $\overline{AC} \cong \overline{DF}$



This is part of the definition of congruent polygons, and can be used as a reason in a proof.

CLASS WORK

Determine why the two triangles are congruent. Give the congruence statement. Then list all the other corresponding parts of the triangles that are congruent.



AAS Theorem

$$\Delta JKH \cong \Delta LKM$$

$$\angle H \cong \angle M$$

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

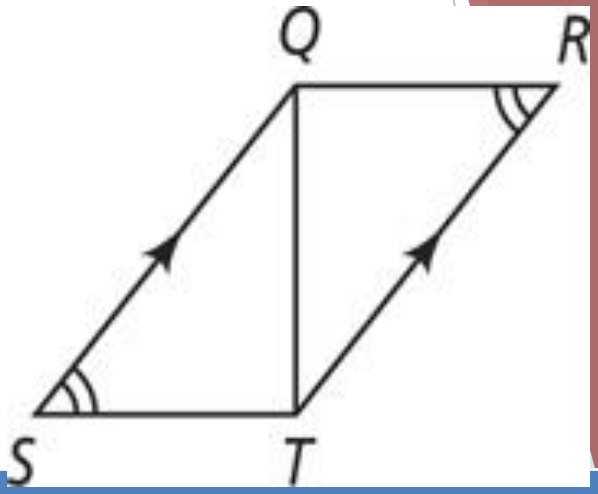
$$\overline{HK} \cong \overline{MK}$$

CLASS WORK

2. Complete the proof.

Given: $\overline{QS} \parallel \overline{RT}$, $\angle R \cong \angle S$

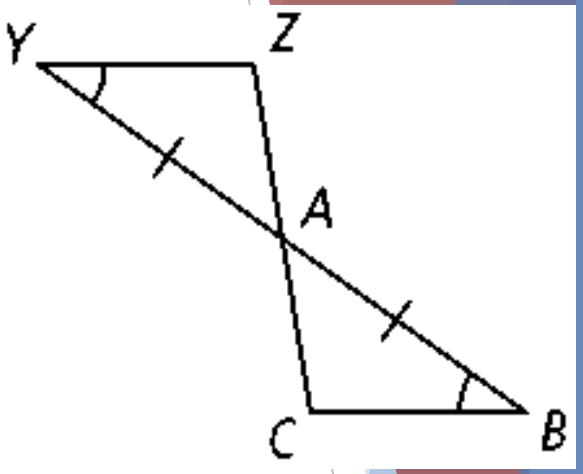
Prove: $\overline{ST} \cong \overline{RQ}$



Statements	Reasons
1) $\overline{QS} \parallel \overline{RT}$; $\angle R \cong \angle S$	1) Given
2) $\angle SQT \cong \angle RTQ$	2) Alternate interior angles theorem
3) $\overline{QT} \cong \overline{QT}$	3) Reflexive Property of $\cong$
4) $\Delta SQT \cong \Delta RTQ$	4) AAS Theorem
5) $\overline{ST} \cong \overline{RQ}$	5) CPCTC

CLASS WORK

3. Complete the proof.



Given: $\overline{YA} \cong \overline{BA}$, $\angle B \cong \angle Y$

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

Statements	Reasons
1 $\overline{YA} \cong \overline{BA}$, $\angle B \cong \angle Y$	1) Given
2) $\angle ZAY \cong \angle BAC$	2) Vertical angles theorem
3) $\Delta AZY \cong \Delta ACB$	3) ASA Postulate
4) $\overline{AZ} \cong \overline{AC}$	4) CPCTC

1. CPCTC – Corresponding parts of congruent triangles are congruent.
2. This is part of the definition of congruent polygons, and can be used as a reason in a proof.

SUMMARY

LEARNING RUBRIC

- Got It: Proves additional information about congruent triangles using CPCTC using proofs
- Almost There: Proves corresponding parts of congruent triangles using proofs
- Moving Forward: Informally applies additional corresponding parts of congruent triangle that would be congruent in diagrams and word problems
- Getting Started: Identifies/informally applies additional corresponding parts of congruent triangle that would be congruent

HOMEWORK

Pages 271 – 273

8 – 12 even;

16 – 28 even