Geometry
4.2 Apply Congruence and Triangles

Name : _____
Date : _____ Period : ____

- I can identify and name congruent figures

Two geometric figures are _____if they have exactly the same ***size*** and ***shape***.

In two congruent figures, ***all parts*** of one figure are congruent to corresponding parts of the other figure.

So when you write a congruence statement, always list the corresponding vertices _____**.**

Example #1
Since corresponding parts across corresponding figures are congruent, complete the following congruence statements for $\triangle ABC$ and $\triangle DEF$ below.

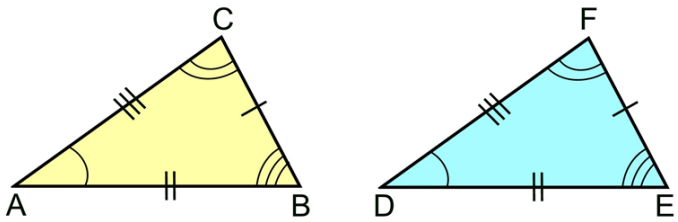
We can look at the markings on angles and the sides to determine that:

Congruent angles:

_____ ≅ _____
_____ ≅ _____
_____ ≅ _____

Congruent sides:

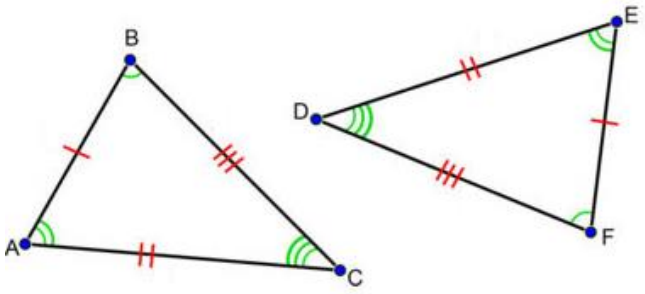
_____ ≅ _____
_____ ≅ _____
_____ ≅ _____



Since we know corresponding parts of congruent triangles are congruent : Δ_____ ≅ Δ_____

Example #2 Try On Your Own!

State the corresponding parts of the triangles below, then write a congruence statement.



Congruent angles:

_____ ≅ _____
_____ ≅ _____
_____ ≅ _____

Congruent sides:

_____ ≅ _____
_____ ≅ _____
_____ ≅ _____

So since we know corresponding parts of congruent triangles are congruent : Δ_____ ≅ Δ_____

Key Concept	
Reflexive Property	Examples:

In triangle congruence, the reflexive property is used when two triangles _____.

Example #3

Congruent angles:

_____ ≅ _____

_____ ≅ _____

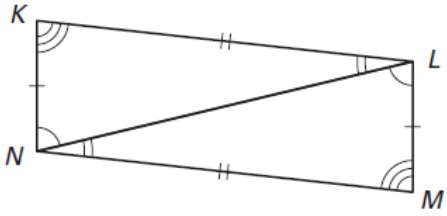
_____ ≅ _____

Congruent sides:

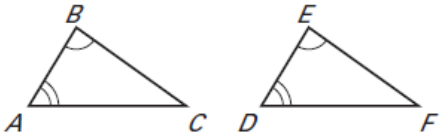
_____ ≅ _____

_____ ≅ _____

_____ ≅ _____



So since we know corresponding parts of congruent triangles are congruent : Δ_____ $\cong$ Δ_____

Theorem 4.3	
Third Angles Theorem: If two angles of one triangle are congruent to two angles of another triangle, then the third angles are also _____.	 If $\angle B \cong \angle \mathrm{E}$ and $\angle A \cong \angle \mathrm{D}$ then _____.

Example #4

Congruent angles:

_____ ≅ _____

_____ ≅ _____

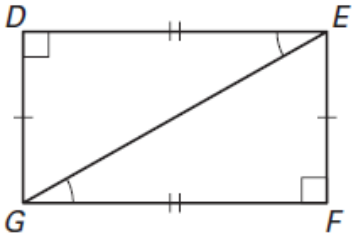
_____ ≅ _____

Congruent sides:

_____ ≅ _____

_____ ≅ _____

_____ ≅ _____



So since we know corresponding parts of congruent triangles are congruent : Δ_____ $\cong$ Δ_____

Example #5

Given $\triangle ABC \cong \triangle DEF$, find the values of x and y.