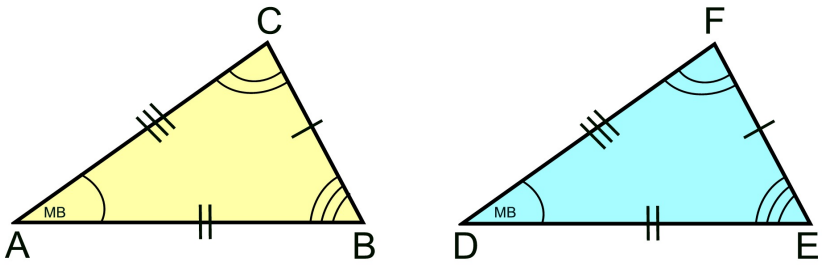
12.8 Congruent Triangles

Figures that have the same size and shape are congruent. The symbol ≅ means "is congruent to".

Corresponding Parts of Congruent Triangles

If two triangles are congruent, their corresponding sides are congruent and their corresponding angles are congruent.

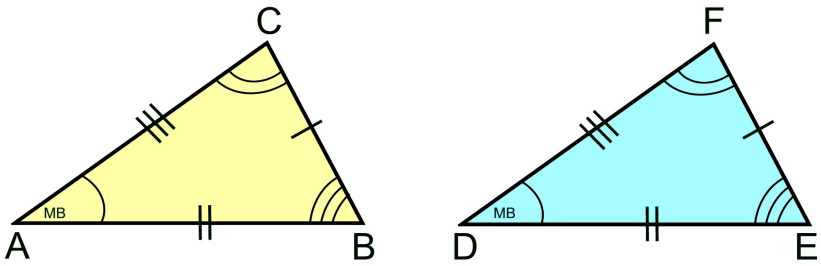


$\Delta ABC \cong \Delta DEF$

NOTE: When writing $\Delta ABC \cong \Delta DEF$, the corresponding vertices are written in the same order.

For example, A is the first vertex listed in the first triangle. Since D corresponds to A, D is the first vertex listed in the second triangle.

Likewise, B corresponds to E and C corresponds to F.



$\Delta ABC \cong \Delta DEF$

Another way to show the corresponding parts is to use matching marks like the ones shown above.

Example 1: Name the congruent angles and sides for each congruent statement.

a.) $\Delta TUV \cong \Delta GFE$

$\angle T \cong \angle G$

$\angle U \cong \angle F$

$\angle V \cong \angle E$

$\overline{TU} \cong \overline{GF}$

$\overline{UV} \cong \overline{FE}$

$\overline{VT} \cong \overline{EG}$

b.) $\Delta DEF \cong \Delta DSR$

$\angle D \cong \angle D$

$\angle E \cong \angle S$

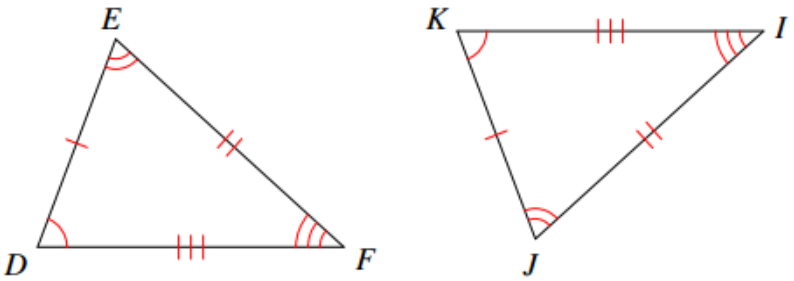
$\angle F \cong \angle R$

$\overline{DE} \cong \overline{DS}$

$\overline{EF} \cong \overline{SR}$

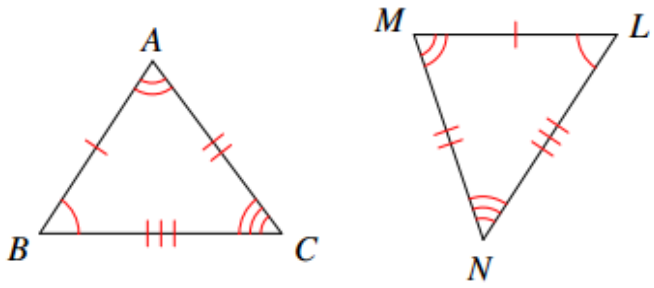
$\overline{FD} \cong \overline{RD}$

Example 2: The corresponding parts of two congruent triangles are given. Write a congruence statement for the triangles.



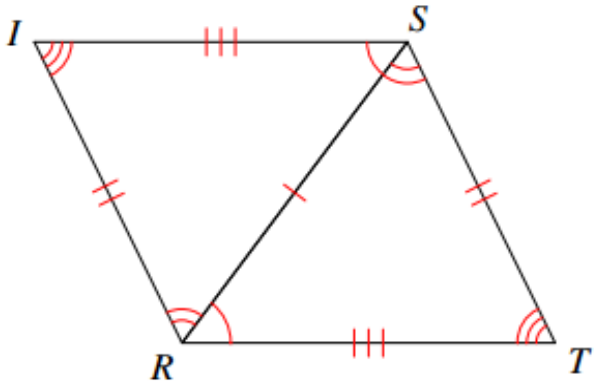
$\Delta DEF \cong \Delta KJI$

Example 3: The corresponding parts of two congruent triangles are given. Write a congruence statement for the triangles.



$\triangle CAB \cong \triangle NML$

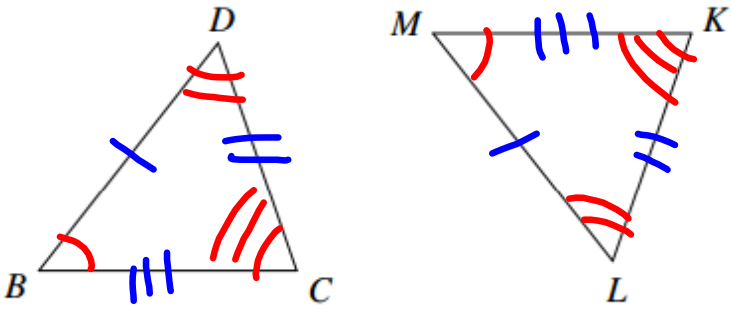
Example 4: The corresponding parts of two congruent triangles are given. Write a congruence statement for the triangles.



$\triangle SIR \cong \triangle RTS$

Example 5: Given the congruence statement, mark the angles and sides of each pair of triangles to indicate that they are congruent.

$$\Delta BDC \cong \Delta MLK$$



Example 6: Given the congruence statement, mark the angles and sides of each pair of triangles to indicate that they are congruent.

$$\Delta CDB \cong \Delta CDL$$