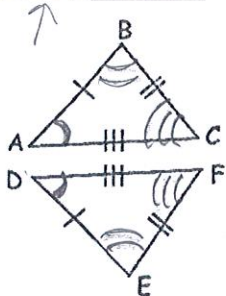


Congruent Triangles have congruent sides and congruent angles.

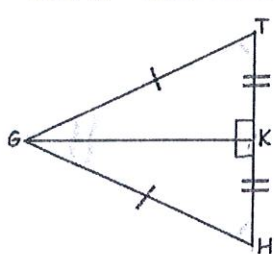
The parts of congruent triangles that "match" are called corresponding parts.

Complete the congruence statement for the following. ORDER MATTERS!

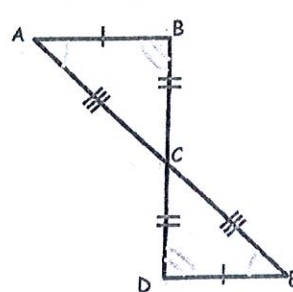
$\triangle ABC \cong \triangle DEF$



$\triangle GHK \cong \triangle GTK$



$\triangle ACB \cong \triangle ECD$



Example: Given $\triangle ABC \cong \triangle DEF$

Make six congruence statements about the corresponding parts.

Mark the diagrams with hash marks and arcs to identify congruent parts.

$\angle A \cong \angle D$

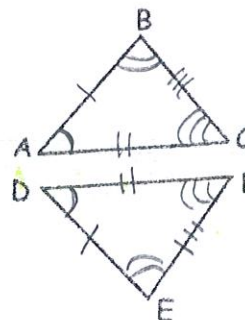
$\overline{AB} \cong \overline{DE}$

$\angle B \cong \angle E$

$\overline{AC} \cong \overline{DF}$

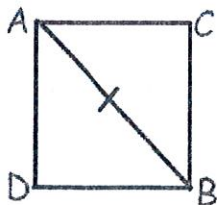
$\angle C \cong \angle F$

$\overline{BC} \cong \overline{EF}$



Special properties to remember: (you can add these markings to your diagrams!!!)

1)



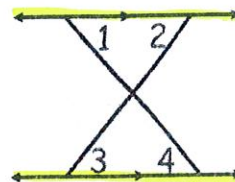
$\overline{AB} \cong \overline{AB}$ by Reflexive Property

2)



$\angle 1 \cong \angle 2$ because vertical angles are congruent

3)



$\angle 1 \cong \angle 4$ $\angle 2 \cong \angle 3$ by Alternate Interior angles theorem

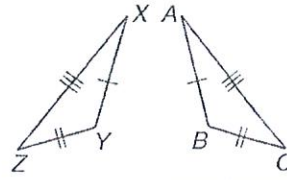
If we can show just 3 (rather than six) corresponding parts in a certain order are congruent, then that is enough to prove the two triangles are congruent.

SSS

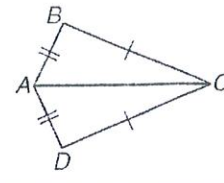
If the three sides of one triangle are congruent to the three sides of a second triangle, then the two triangles are congruent.

Side-Side-Side (SSS)

$\triangle XYZ \cong \triangle ABC$



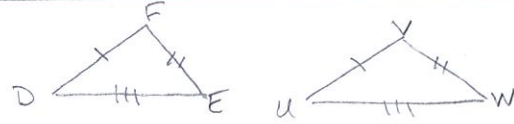
$\triangle ABC \cong \triangle ADC$



1. In two triangles, $\overline{DF} \cong \overline{UV}$, $\overline{FE} \cong \overline{VW}$ and $\overline{DE} \cong \overline{UW}$.

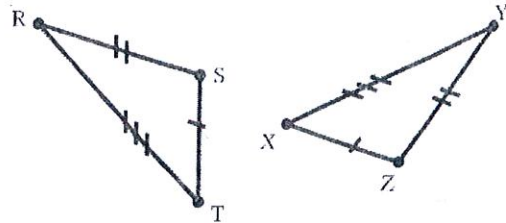
Write a congruence statement.

$\triangle DFE \cong \triangle UVW$ by SSS

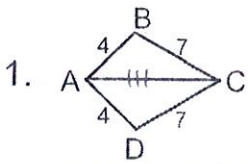


2. Determine whether the triangles are congruent. If they are, write a congruence statement explaining why they are congruent.

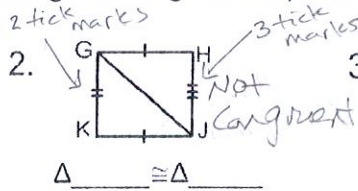
$\triangle TSR \cong \triangle XZY$ by SSS



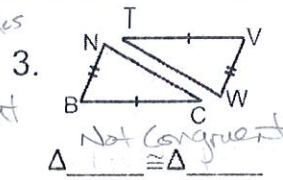
YOU TRY! Are these triangles congruent by SSS? If so, name them. Remember your special properties!



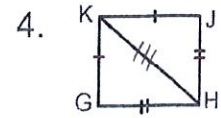
$\triangle ABC \cong \triangle ADC$



$\triangle \underline{\hspace{1cm}} \cong \triangle \underline{\hspace{1cm}}$



$\triangle \underline{\hspace{1cm}} \cong \triangle \underline{\hspace{1cm}}$



$\triangle KGH \cong \triangle KJH$

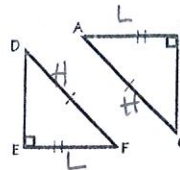
Parts of a Right Triangle

HL

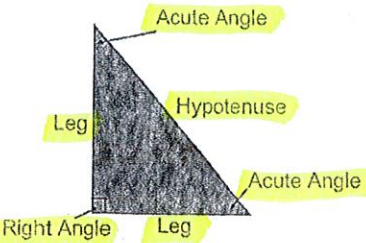
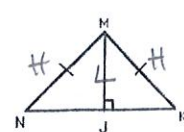
Hypotenuse-Leg (HL)

If the hypotenuse and a leg of one right triangle is congruent to the hypotenuse and a leg of another right triangle, then the triangles are congruent.

$\triangle DEF \cong \triangle CBA$

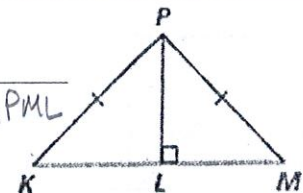


$\triangle NMJ \cong \triangle KMJ$



Can you use HL to prove the two triangles congruent? If yes, write a congruence statement. If not, explain why not.

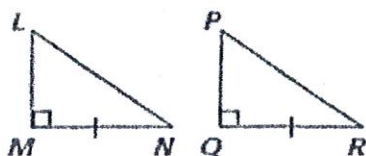
1. Yes
 $\triangle PKL \cong \triangle PML$



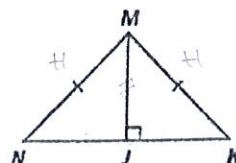
2. no, hypotenuse is not congruent



3. no, no \cong hypotenuse



4. yes, $\triangle MNJ \cong \triangle MJK$



5. yes, $\triangle WXY \cong \triangle YZW$

