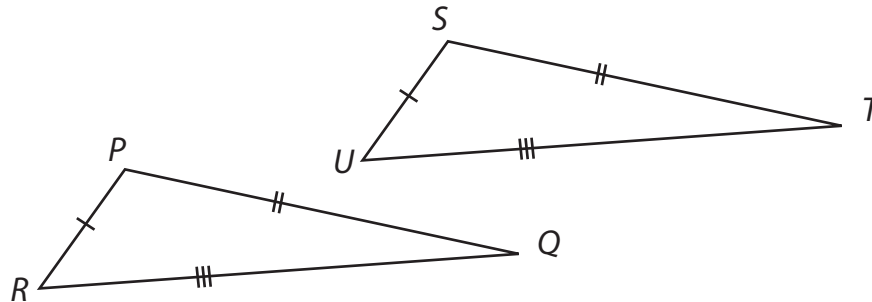


Instruction

Guided Practice 4.3

Example 1

Determine which congruence statement, if any, can be used to show that $\triangle PQR$ and $\triangle STU$ are congruent.



1. Determine which components of the triangles are congruent.
According to the diagram, $\overline{RP} \cong \overline{US}$, $\overline{PQ} \cong \overline{ST}$, and $\overline{TU} \cong \overline{QR}$.
Corresponding side lengths of the two triangles are identified as congruent.



2. Determine if this information is enough to state that all six corresponding parts of the two triangles are congruent.
It is given that all side lengths of the two triangles are congruent; therefore, all their angles are also congruent.
Because all six corresponding parts of the two triangles are congruent, then the two triangles are congruent.

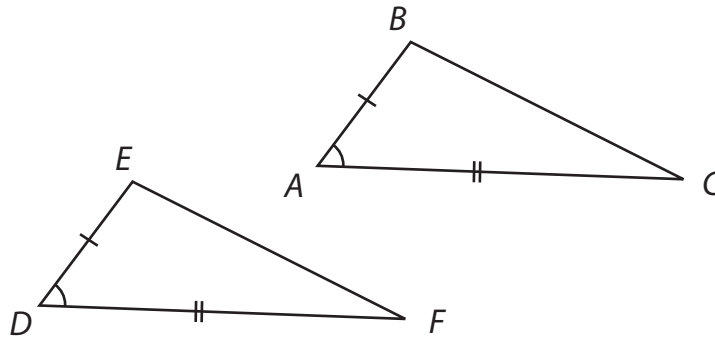


3. Summarize your findings.
 $\triangle PQR \cong \triangle STU$ because of the congruence statement side-side-side (SSS). 

Instruction

Example 2

Determine which congruence statement, if any, can be used to show that $\triangle ABC$ and $\triangle DEF$ are congruent.




1. Determine which components of the triangles are congruent.
According to the diagram, $\overline{AB} \cong \overline{DE}$, $\overline{AC} \cong \overline{DF}$, and $\angle A \cong \angle D$.
Two corresponding side lengths of the two triangles and one corresponding angle are identified as congruent.



2. Determine if this information is enough to state that all six corresponding parts of the two triangles are congruent.
Notice that the congruent angles are included angles, meaning the angles are between the sides that are marked as congruent.
It is given that two sides and the included angle are congruent, so the two triangles are congruent.



3. Summarize your findings.
 $\triangle ABC \cong \triangle DEF$ because of the congruence statement side-angle-side (SAS). 

Instruction

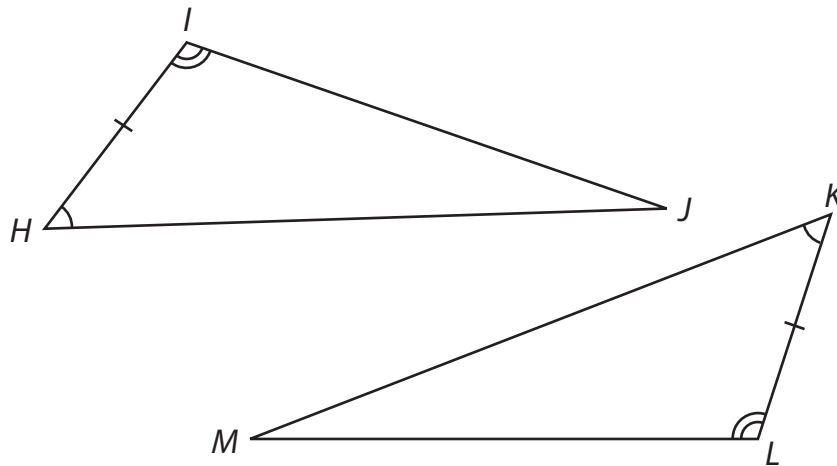
Example 3

Determine which congruence statement, if any, can be used to show that $\triangle HIJ$ and $\triangle KLM$ are congruent if $\overline{HI} \cong \overline{KL}$, $\angle H \cong \angle K$, and $\angle I \cong \angle L$.

1. Determine which components of the triangles are congruent.

One corresponding side length of the two triangles and two corresponding angles are identified as congruent.

It is often helpful to draw a diagram of the triangles with the given information to see where the congruent side is in relation to the congruent angles.



2. Determine if this information is enough to state that all six corresponding parts of the two triangles are congruent.

Notice that the congruent sides are included sides, meaning the sides are between the angles that are marked as congruent.

It is given that the two angles and the included side are equivalent, so the two triangles are congruent.



3. Summarize your findings.

$\triangle HIJ \cong \triangle KLM$ because of the congruence statement angle-side-angle (ASA).



Instruction

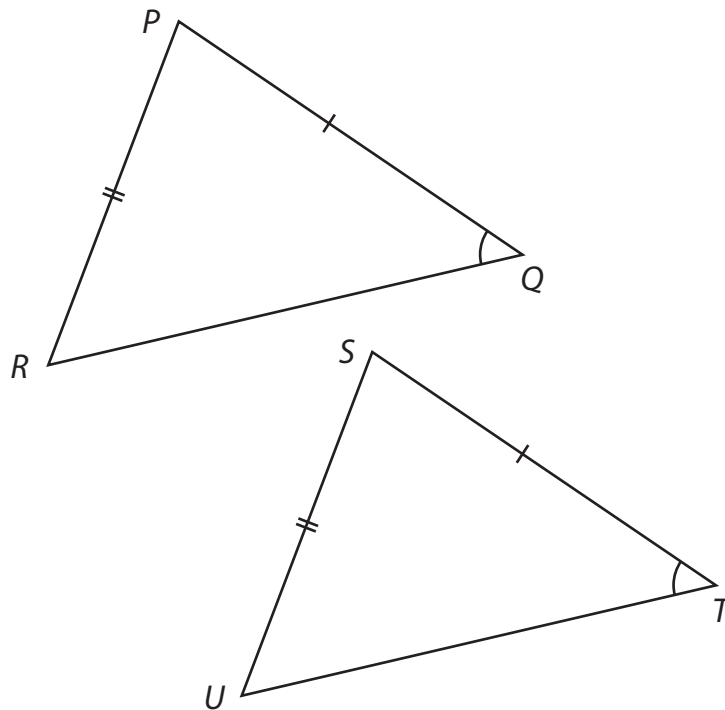
Example 4

Determine which congruence statement, if any, can be used to show that $\triangle PQR$ and $\triangle STU$ are congruent if $\overline{PQ} \cong \overline{ST}$, $\overline{PR} \cong \overline{SU}$, and $\angle Q \cong \angle T$.

1. Determine which components of the triangles are equivalent.

Two corresponding side lengths of the two triangles and one corresponding angle are identified as congruent.

Draw a diagram of the triangles with the given information to see where the congruent sides are in relation to the congruent angle.



Instruction

- Determine if this information is enough to state that all six corresponding parts of the two triangles are congruent.

Notice that the congruent angles are not included angles, meaning the angles are not between the sides that are marked as congruent.

There is no congruence statement that allows us to state that the two triangles are congruent based on the given information.



- Summarize your findings.

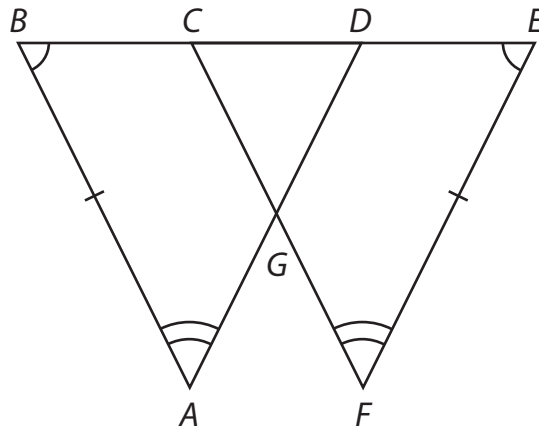
It cannot be determined whether $\triangle PQR$ and $\triangle STU$ are congruent.



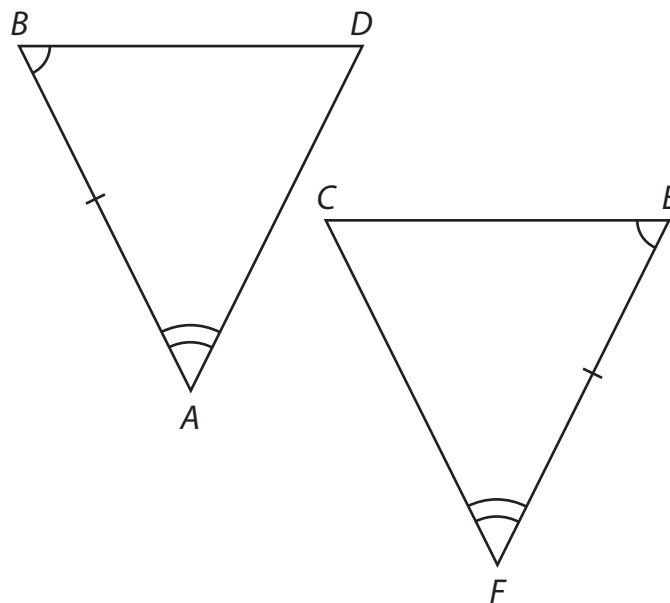
Instruction

Example 5

Determine which congruence statement, if any, can be used to show that $\triangle ABD$ and $\triangle FEC$ are congruent.



1. Determine which components of the triangles are congruent.
Notice that the triangles overlap.
If you have trouble seeing the two triangles, redraw each triangle.



According to the diagram, $\overline{AB} \cong \overline{FE}$, $\angle A \cong \angle F$, and $\angle B \cong \angle E$.

One corresponding side length of the two triangles and two corresponding angles are identified as congruent.



Instruction

2. Determine if this information is enough to state that all six corresponding parts of the two triangles are congruent.

Notice that the congruent sides are included sides, meaning the sides are between the angles that are marked as congruent.

It is given that two angles and the included side are equivalent, so the two triangles are congruent.



3. Summarize your findings.

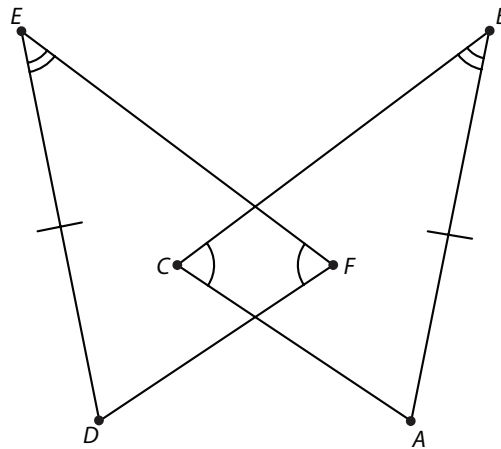
$\triangle ABD \cong \triangle FEC$ because of the congruence statement angle-side-angle (ASA).



Instruction

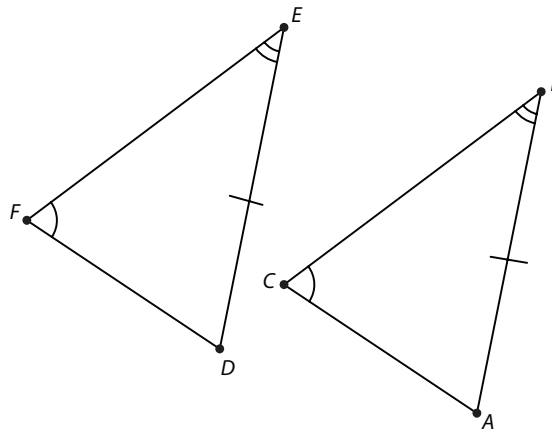
Example 6

Determine which congruence statement, if any, can be used to show that $\triangle ABC$ and $\triangle DEF$ are congruent.



1. Determine which components of the triangles are congruent.

These triangles overlap; if you have trouble seeing them, redraw each triangle.



According to the diagram, $\overline{AB} \cong \overline{DE}$, $\angle B \cong \angle E$, and $\angle C \cong \angle F$. One corresponding side length of the two triangles and two corresponding angles are identified as congruent.



Instruction

2. Determine whether this information is enough to state all six corresponding parts of the two triangles are congruent.

Notice that the congruent side is not included between the two angles.

It is given that two triangles are congruent if two angles and the non-included side of one triangle are congruent to the corresponding two angles and side of the second triangle.



3. Summarize your findings.

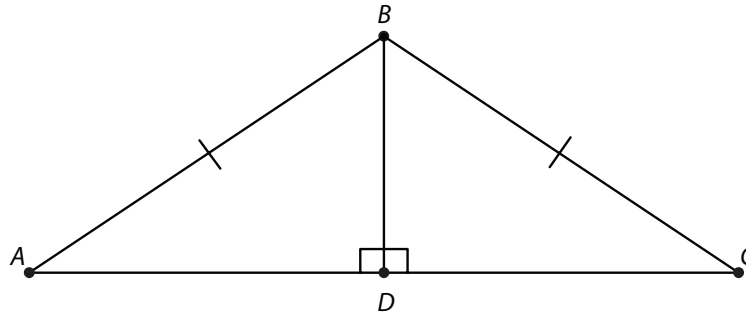
$\triangle ABC \cong \triangle DEF$ because of the congruence statement angle-angle-side (AAS).



Instruction

Example 7

Determine which congruence statement, if any, can be used to show that $\triangle ABD$ is congruent to $\triangle CBD$.



1. Determine which components of the triangles are congruent.

According to the diagram, $\overline{AB} \cong \overline{BC}$. The two triangles also share a side, \overline{BD} . Notice that both triangles are right triangles.



2. Determine whether this information is enough to state all six corresponding parts of the two triangles are congruent.

Notice that the marked congruent sides are the hypotenuses of the right triangles, and that the shared side is a leg of each right triangle.

It is given that the hypotenuse and one leg are equivalent, so the two triangles are congruent.



3. Summarize your findings.

$\triangle ABD \cong \triangle CBD$ because of the congruence statement hypotenuse-leg (HL) for right triangles.

