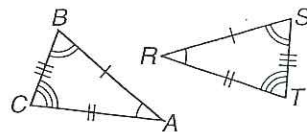


4-3 Study Guide and Intervention

Congruent Triangles

Corresponding Parts of Congruent Triangles

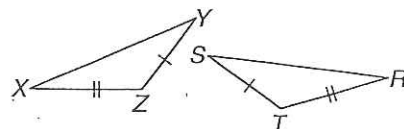
Triangles that have the same size and same shape are **congruent triangles**. Two triangles are congruent if and only if all three pairs of corresponding angles are congruent and all three pairs of corresponding sides are congruent. In the figure, $\triangle ABC \cong \triangle RST$.



Example If $\triangle XYZ \cong \triangle RST$, name the pairs of congruent angles and congruent sides.

$$\angle X \cong \angle R, \angle Y \cong \angle S, \angle Z \cong \angle T$$

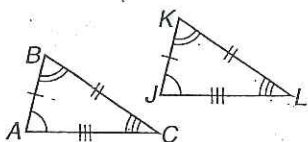
$$\overline{XY} \cong \overline{RS}, \overline{XZ} \cong \overline{RT}, \overline{YZ} \cong \overline{ST}$$



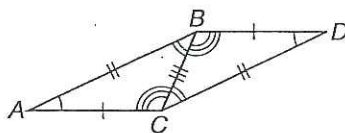
Exercises

Identify the congruent triangles in each figure.

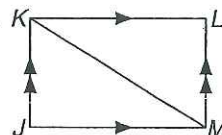
1.



2.

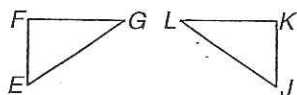


3.

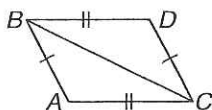


Name the corresponding congruent angles and sides for the congruent triangles.

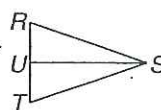
4.



5.



6.



4-3

Study Guide and Intervention *(continued)*

Congruent Triangles

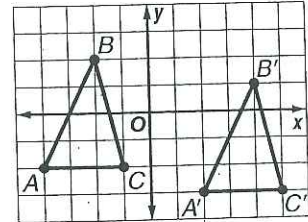
Identify Congruence Transformations If two triangles are congruent, you can slide, flip, or turn one of the triangles and they will still be congruent. These are called **congruence transformations** because they do not change the size or shape of the figure. It is common to use prime symbols to distinguish between an original $\triangle ABC$ and a transformed $\triangle A'B'C'$.

Example Name the congruence transformation that produces $\triangle A'B'C'$ from $\triangle ABC$.

The congruence transformation is a slide.

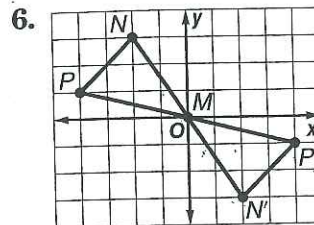
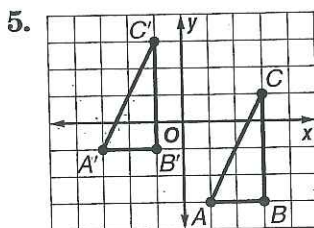
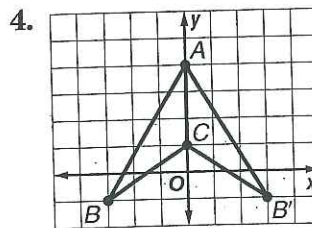
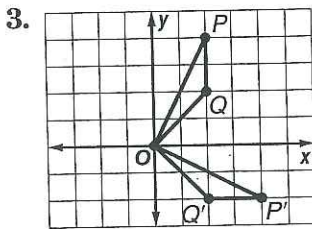
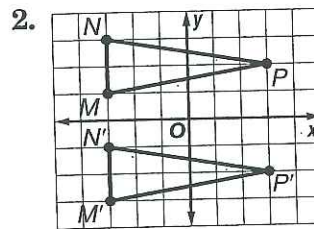
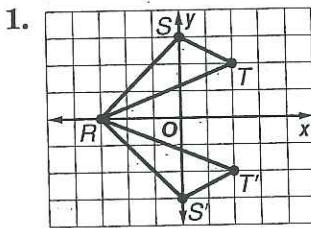
$$\angle A \cong \angle A'; \angle B \cong \angle B'; \angle C \cong \angle C';$$

$$\overline{AB} \cong \overline{A'B'}; \overline{AC} \cong \overline{A'C'}; \overline{BC} \cong \overline{B'C'}$$



Exercises

Describe the congruence transformation between the two triangles as a *slide*, a *flip*, or a *turn*. Then name the congruent triangles.



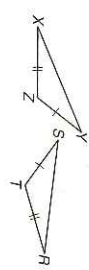
4-3 Study Guide and Intervention Congruent Triangles

Corresponding Parts of Congruent Triangles
Triangles that have the same size and same shape are **congruent triangles**. Two triangles are congruent if and only if all three pairs of corresponding angles are congruent and all three pairs of corresponding sides are congruent. In the figure, $\triangle ABC \cong \triangle RST$.



Example If $\triangle XYZ \cong \triangle RST$, name the pairs of congruent angles and congruent sides.

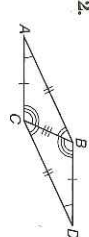
$\angle X \cong \angle R, \angle Y \cong \angle S, \angle Z \cong \angle T$
 $XY \cong RS, XZ \cong RT, YZ \cong ST$



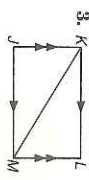
Examples
Identify the congruent triangles in each figure.



$\triangle ABC \cong \triangle KJL$

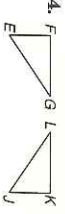


$\triangle ABC \cong \triangle DCB$



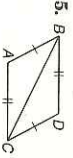
$\triangle JKM \cong \triangle JLN$

Name the corresponding congruent angles and sides for the congruent triangles.



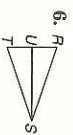
$\angle E \cong \angle L, \angle F \cong \angle K, \angle G \cong \angle J$
 $\overline{EF} \cong \overline{LK}, \overline{FG} \cong \overline{KJ}, \overline{EG} \cong \overline{JL}$

$\triangle EFG \cong \triangle LKJ$



$\angle A \cong \angle D, \angle ABC \cong \angle DCB, \angle ACB \cong \angle DBC$
 $\overline{AB} \cong \overline{DC}, \overline{AC} \cong \overline{DB}, \overline{BC} \cong \overline{CB}$

$\triangle ABC \cong \triangle DCB$



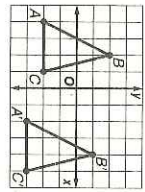
$\angle R \cong \angle U, \angle RSU \cong \angle TUS, \angle RUS \cong \angle TUS$
 $\overline{RU} \cong \overline{TU}, \overline{RS} \cong \overline{TS}, \overline{SU} \cong \overline{SU}$

$\triangle RST \cong \triangle UTS$

Lesson 4-3

4-3 Study Guide and Intervention Congruent Triangles

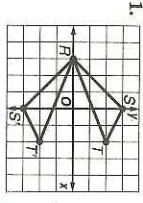
Identify Congruence Transformations If two triangles are congruent, you can slide, flip, or turn one of the triangles and they will still be congruent. These are called **congruence transformations** because they do not change the size or shape of the figure. It is common to use prime symbols to distinguish between an original $\triangle ABC$ and a transformed $\triangle A'B'C'$.



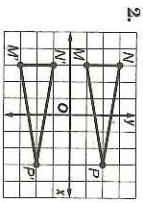
Example Name the congruence transformation that produces $\triangle A'B'C'$ from $\triangle ABC$. The congruence transformation is a slide.

$\angle A \cong \angle A', \angle B \cong \angle B', \angle C \cong \angle C'$
 $\overline{AB} \cong \overline{A'B'}, \overline{AC} \cong \overline{A'C'}, \overline{BC} \cong \overline{B'C'}$

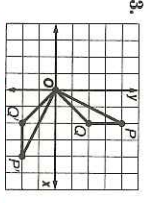
Examples
Describe the congruence transformation between the two triangles as a *slide*, a *flip*, or a *turn*. Then name the congruent triangles.



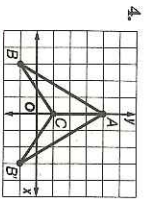
flip: $\triangle RST \cong \triangle S'N'T'$



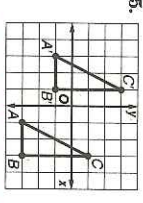
slide: $\triangle MNP \cong \triangle M'N'P'$



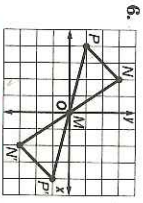
turn: $\triangle OPQ \cong \triangle O'P'Q'$



flip: $\triangle ABC \cong \triangle A'B'C'$



slide: $\triangle ABC \cong \triangle A'B'C'$



turn: $\triangle MNP \cong \triangle M'N'P'$