Triangle Congruence Postulates

Included angle: the angle between two sides of a triangle

Included side: the side common to two angles of a triangle

SSS (Side-Side-Side) Congruence Postulate: If the three sides of one triangle are congruent to the corresponding sides of another triangle, then the two triangles are congruent.

SAS (Side-Angle-Side) Congruence Postulate:
If the two sides and an included angle of one triangle are congruent to the corresponding two sides and included angle of another triangle, then the two triangles are congruent.

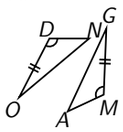
ASA (Angle-Side-Angle) Congruence Postulate: If two angles and the included side of one triangle are congruent to the corresponding two angles and included side of another triangle, then the two triangles are congruent.

HL (Hypotenuse-Leg) Congruence Postulate: If the hypotenuse and a leg of one right triangle are congruent to the corresponding hypotenuse and side of another right triangle, then the two right triangles are congruent.

Practice Exercises

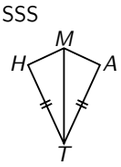
A. The figures are marked with their congruent parts. Determine the other congruent parts to satisfy the condition written for each figure.

1. SAS

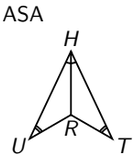


2. SSS

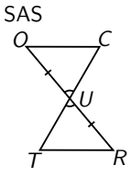
3. SSS



4. ASA

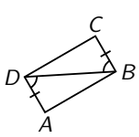


5. SAS



B. Fill in the blanks then indicate the congruence postulate used.

1.



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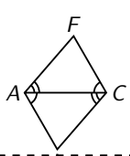
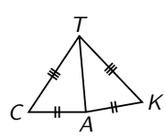
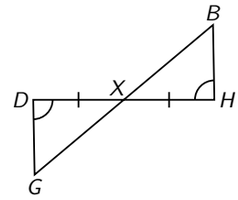


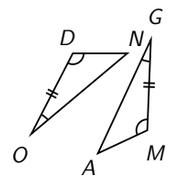
3.



4.



5.

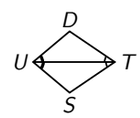


1. $\overline{CB} \cong$ ____
   $\overline{BD} \cong$ ____
   $\angle CBD \cong$ ____
   $\triangle CBD \cong$ ____
   Postulate: ____
2. $\overline{AC} \cong$ ____
   $\angle FCA \cong$ ____
   $\angle FAC \cong$ ____
   $\triangle FCA \cong$ ____
   Postulate: ____
3. $\overline{AT} \cong$ ____
   $\overline{AC} \cong$ ____
   $\overline{CT} \cong$ ____
   $\triangle ACT \cong$ ____
   Postulate: ____
4. $\overline{DX} \cong$ ____
   $\angle DXG \cong$ ____
   $\angle D \cong$ ____
   $\triangle DXG \cong$ ____
   Postulate: ____
5. $\overline{DO} \cong$ ____
   $\angle O \cong$ ____
   $\angle D \cong$ ____
   $\triangle DON \cong$ ____
   Postulate: ____

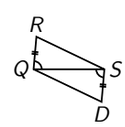
Problem Set

A. Fill in the blanks then indicate the congruence postulate used.

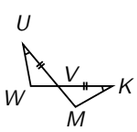
1.



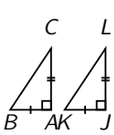
2.



3.

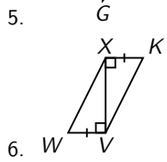


4.



5.

6.



1. $\overline{TU} \cong$ ____
   $\angle DUT \cong$ ____
   $\angle DTU \cong$ ____
   $\triangle DUT \cong$ ____
   Postulate: ____
2. $\overline{QS} \cong$ ____
   $\overline{QR} \cong$ ____
   $\angle RQS \cong$ ____
   $\triangle RQS \cong$ ____
   Postulate: ____
3. $\overline{UV} \cong$ ____
   $\angle U \cong$ ____
   $\angle UVW \cong$ ____
   $\triangle UVW \cong$ ____
   Postulate: ____
4. $\overline{AB} \cong$ ____
   $\overline{AC} \cong$ ____
   $\angle A \cong$ ____
   $\triangle ABC \cong$ ____
   Postulate: ____
5. $\overline{FO} \cong$ ____
   $\overline{HF} \cong$ ____
   $\angle HFO \cong$ ____
   $\triangle HFO \cong$ ____
   Postulate: ____
6. $\overline{KX} \cong$ ____
   $\overline{XV} \cong$ ____
   $\angle KXV \cong$ ____
   $\triangle KXV \cong$ ____
   Postulate: ____

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2. SSS
3. SSS
4. ASA
5. SAS

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4.
5.

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   $\triangle DXG \cong$ ____
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   $\angle O \cong$ ____
   $\angle D \cong$ ____
   $\triangle DON \cong$ ____
   Postulate: ____

Problem Set

A. Fill in the blanks then indicate the congruence postulate used.

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4.
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6.

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