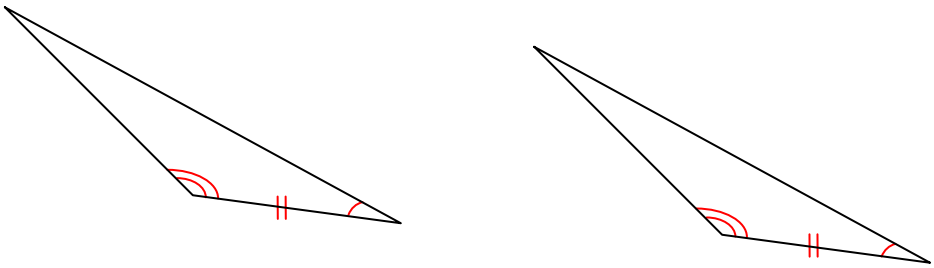
Name _____ Date _____

Congruent Triangles: AAS and ASA Theorems- Guided Lesson Explanation

Explanation#1

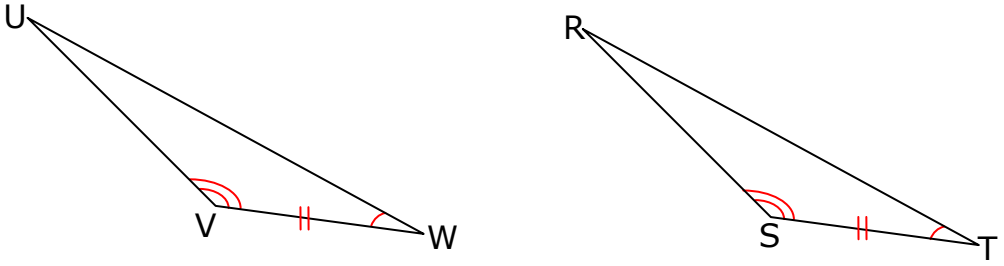


ASA (angle-side- angle)

Two angles and the side between them are congruent.

The ASA Theorem states that two triangles are congruent if and only if two angles and the included side of one triangle are congruent to two angles and the included side of the other triangle.

Find the two triangles with two pairs of congruent angles and congruent included sides.



$\angle V \cong \angle S$ Angle

$\angle \overline{VW} \cong \angle \overline{ST}$ Side

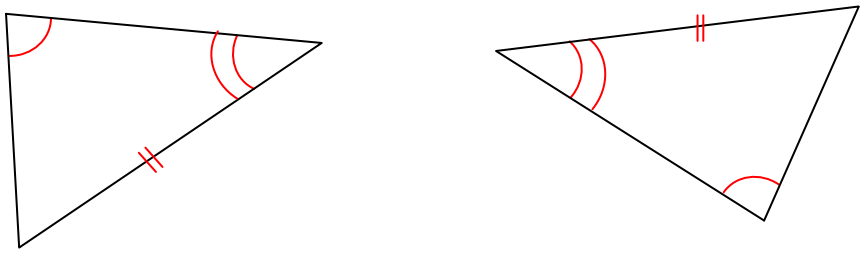
$\angle W \cong \angle T$ Angle

Two angles and the included side of ΔUVW are congruent to two angles and the included side of ΔTRS, so the triangles are congruent by the ASA Theorem.

To write the congruence statement, match the corresponding vertices. Since $\angle W \cong \angle T$ and $\angle V \cong \angle S$, W corresponding to T and V corresponds to S. therefore, U corresponds to R and ΔVUW ≅ ΔSRT.

Name _____ Date _____

Explanation # 2

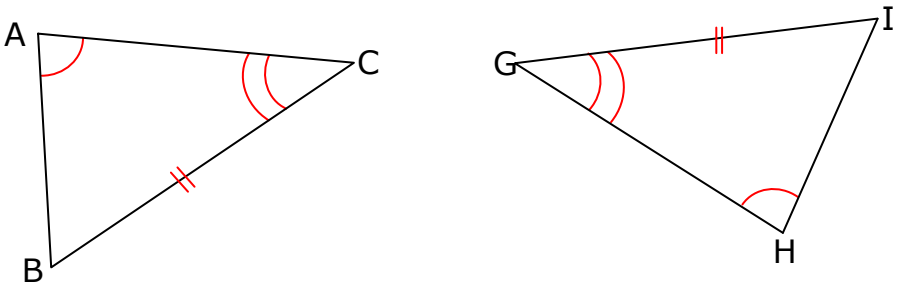


AAS (angle-angle-side)

Two angles and a non-included side are congruent.

The AAS Theorem states that two triangles are congruent if and only if two angles and a non-included side of one triangle are congruent to two angles and the corresponding non-included side of the other triangle.

Find the two triangles with two pairs of congruent angles and a pair of congruent corresponding non-included sides.



$\angle A \cong \angle H$ Angle

$\angle C \cong \angle G$ Angle

$\angle \overline{BC} \cong \angle \overline{GI}$ Side

Two angles and a non-included side of ΔBAC are congruent to two angles and the corresponding non-included side of ΔIHG, so these Triangle are congruent by the AAS Theorem.

To write the congruence statement, match the corresponding vertices. Since $\angle A \cong \angle H$ and $\angle C \cong \angle G$, A corresponds to H and C corresponds to G. Therefore, B corresponds to I and $\Delta BAC \cong \Delta IHG$.

Name _____ Date _____

Explanation # 3

AAS (angle-angle-side)

Two angles and a non-included side are congruent.

The AAS Theorem states that two triangles are congruent if and only if two angles and a non-included side of one triangle are congruent to two angles and the corresponding non-included side of the other triangle.

Find the two triangles with two pairs of congruent angles and a pair of congruent corresponding non-included sides.

$\angle J \cong \angle Q$ Angle

$\angle L \cong \angle R$ Angle

$\angle \overline{KJ} \cong \angle \overline{QP}$ Side

Two angles and a non-included side of ΔKJL are congruent to two angles and the corresponding non-included side of ΔPQR, so these triangles are congruent by the AAS Theorem.

To write the congruence statement, match the corresponding vertices. Since $\angle J \cong \angle Q$ and $\angle L \cong \angle R$, J corresponds to Q and L corresponds to R. Therefore, K corresponds to P and $\Delta KJL \cong \Delta PQR$.