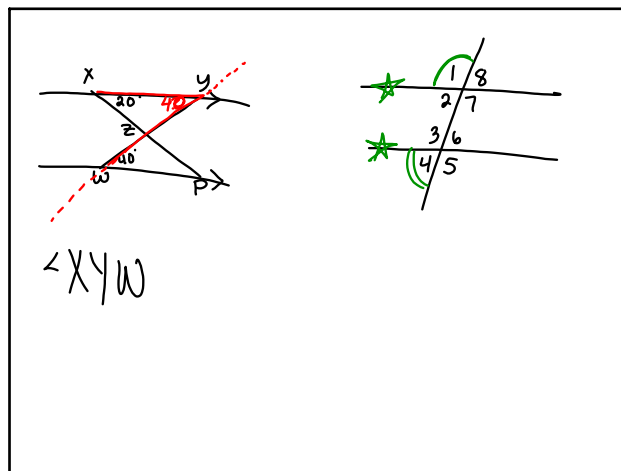


Congruent Triangles (part 2)



title

Oct 29-8:28 AM

Tell whether the angles or sides are *corresponding angles*, *corresponding sides*, or *neither*.

$\angle C \cong \angle D$ *No*

$\overline{GD} \cong \overline{CT}$ *yes*

$\angle O \cong \angle A$ *yes*

$\overline{AT} \cong \overline{OG}$ *No*

corresponding parts

Proving Triangles are Congruent

We learned that if all three pairs of corresponding sides and all three pairs of corresponding angles are congruent, then the two triangles are congruent.

But.....do we need all six pairs of corresponding parts to be congruent to prove two triangles are congruent???

Could we prove two triangles are congruent if we only had three pairs of congruent corresponding sides?

congruent triangles

Side-Side-Side (SSS) Congruence Postulate

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

$\triangle ABC \cong \triangle DEF$

SSS

Included angles vs. Non-included angles

Included angle—angle formed by two sides of a triangle

included angles

Side-Angle-Side (SAS) Congruence Postulate

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

SAS

Side-Side-Angle is not a valid method for proving triangles are congruent.

~~SSA~~

EXCEPT....when the non-included angle is a **right angle**.

No SSA

Right Triangles

Legs of a right triangle—the sides that form the right angle

Hypotenuse—the side opposite the right angle

➤ It is the longest side of the right triangle.

HL
(Rt Δ)

Hypotenuse-Leg (HL) Congruence Theorem

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

right triangles

HL

SSS, SAS, HL

Are the triangles congruent? If so, state the congruence postulate or theorem you would use.

SAS SSS No

HL No SAS

examples

State the additional information that is needed to prove $\triangle ABC \cong \triangle DEF$ using the indicated postulate or theorem.

Given: $\overline{BC} \cong \overline{EF}$
 $\angle F \cong \angle C$

Method: SAS

Given: $\overline{ED} \cong \overline{BA}$
 $\overline{AC} \cong \overline{DF}$

Method: SSS

Given: $\overline{DE} \cong \overline{AB}$
 $m\angle A = m\angle D = 90^\circ$

Method: HL

examples

Conclusion

1. What ways can you prove triangles congruent?
2. Which method cannot prove two triangles are congruent?
3. What is the difference between an included angle and non-included angle?
4. Questions???

Oct 21-1:28 PM

Assignment
Congruent Triangles
Wkst #2

Oct 21-1:31 PM