

**New Seating Chart  
Bell Ringer**

**Wednesday 1/29**

Determine whether the following triangles are congruent and identify the theorem or postulate that supports your claim.

1.

Congruence:  $\triangle YZA \cong \triangle$  \_\_\_\_\_

Reason: \_\_\_\_\_

2.

Congruence:  $\triangle ABC \cong \triangle$  \_\_\_\_\_

Reason: \_\_\_\_\_

3.

Congruence:  $\triangle ABC \cong \triangle$  \_\_\_\_\_

Reason: \_\_\_\_\_

Jan 28-8:48 AM

**Review of SSS, SAS, HL, ASA, AAS**

Jan 28-8:49 AM

**Theorem**

**Side-Side-Side (SSS) Congruence Theorem**

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

If  $\overline{AB} \cong \overline{DE}$ ,  $\overline{BC} \cong \overline{EF}$ , and  $\overline{AC} \cong \overline{DF}$ , then  $\triangle ABC \cong \triangle DEF$ .

Theorem

**Which are congruent by SSS?**

Jan 4-11:55 PM

**Theorem**

**Hypotenuse-Leg (HL) Congruence Theorem**

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

If  $\overline{AB} \cong \overline{DE}$ ,  $\overline{AC} \cong \overline{DF}$ , and  $m\angle C = m\angle F = 90^\circ$ , then  $\triangle ABC \cong \triangle DEF$ .

*Proof: BigIdeasMath.com*

Theorem

**A right triangle is the only way SSA can work and we call it HL, never....**

Jan 4-11:52 PM

Which are congruent by HL?

Jan 4-11:58 PM

**Theorem**  
**Side-Angle-Side (SAS) Congruence Theorem**  
 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.  
 If  $\overline{AB} \cong \overline{DE}$ ,  $\angle A \cong \angle D$ , and  $\overline{AC} \cong \overline{DF}$ , then  $\triangle ABC \cong \triangle DEF$ .  
 Proof p. 602

Jan 28-10:25 AM

Which are congruent by SAS?

Jan 28-10:39 AM

**Theorem**  
**Angle-Side-Angle (ASA) Congruence Theorem**  
 If two angles and the included side of one triangle are congruent to two angles and the included side of a second triangle, then the two triangles are congruent.  
 If  $\angle A \cong \angle D$ ,  $\overline{AC} \cong \overline{DF}$ , and  $\angle C \cong \angle F$ , then  $\triangle ABC \cong \triangle DEF$ .  
 Proof p. 626

Theorem

**Theorem**  
**Angle-Angle-Side (AAS) Congruence Theorem**  
 If two angles and a non-included side of one triangle are congruent to two angles and the corresponding non-included side of a second triangle, then the two triangles are congruent.  
 If  $\angle A \cong \angle D$ ,  $\angle C \cong \angle F$ , and  $\overline{BC} \cong \overline{EF}$ , then  $\triangle ABC \cong \triangle DEF$ .  
 Proof p. 627

Theorem

Notice where the "side" is for ASA vs AAS

Jan 5-12:13 AM

Which are congruent by ASA? AAS?

Jan 5-12:09 AM

Once you prove two triangles are congruent, you can then conclude all of their corresponding sides and angles are also congruent because:

"Corresponding Parts of Congruent Triangles are Congruent." or CPCTC

$AB \cong FE$

Jan 5-11:25 AM

Do #16 together Due Friday

Congruent Triangles Worksheet Name: \_\_\_\_\_ Hrs: \_\_\_\_\_

A) Determine whether the following triangles are congruent.  
 B) If they are, name the triangle congruence (Pay attention to proper correspondence when naming the triangles) and then identify the theorem or postulate (SSS, SAS, ASA, AAS, HL) that supports your conclusion.  
 C) Be sure to show any additional congruence markings you used in your reasoning.  
 D) If the triangles cannot be proven congruent, state "not possible." Then give the reason it is not possible.

1) Congruence: **SAS**  
 $\triangle ABD \cong \triangle CBD$   
 Reason: **Reflexive P.**

2) Congruence:  $\triangle EFG \cong \triangle HFG$   
 Reason: \_\_\_\_\_

3) Congruence:  $\triangle EMN \cong \triangle RMN$   
 Reason: \_\_\_\_\_

4) Congruence:  $\triangle STU \cong \triangle VUW$   
 Reason: \_\_\_\_\_

5) Congruence:  $\triangle XYZ \cong \triangle AZY$   
 Reason: \_\_\_\_\_

6) Congruence:  $\triangle CDE \cong \triangle FDE$   
 Reason: \_\_\_\_\_

Jan 28-8:49 AM

7) Congruence:  $\triangle KJM \cong \triangle JKL$   
 Reason: \_\_\_\_\_

8) Congruence:  $\triangle NPR \cong \triangle RPQ$   
 Reason: \_\_\_\_\_

9) Congruence:  $\triangle STU \cong \triangle TVW$   
 Reason: \_\_\_\_\_

10) Congruence:  $\triangle XYZ \cong \triangle WXY$   
 Reason: \_\_\_\_\_

11) Congruence:  $\triangle DGE \cong \triangle GFF$   
 Reason: \_\_\_\_\_

12) Congruence:  $\triangle HJK \cong \triangle KLM$   
 Reason: \_\_\_\_\_

13) Congruence:  $\triangle STV \cong \triangle VUW$   
 Reason: \_\_\_\_\_

14) Congruence:  $\triangle WXY \cong \triangle YZV$   
 Reason: \_\_\_\_\_

15) Congruence:  $\triangle BCF \cong \triangle CDE$   
 Reason: \_\_\_\_\_

Jan 28-8:49 AM

16. Given:  $\angle I \cong \angle J$   
 $\overline{HK} \perp \overline{IJ}$   
 Prove:  $\overline{JK} \cong \overline{IK}$

Statement	Reason
1. $\angle I \cong \angle J$	1. <b>Given</b>
2. $\overline{HK} \perp \overline{IJ}$	2. <b>Given</b>
3. $\angle HKI$ and $\angle HKJ$ are right angles	3. <b>Def. of perp. L's</b>
4. $\angle HKI \cong \angle HKJ$	4. <b>Right angles are congruent</b>
5. $\overline{HK} \cong \overline{HK}$	5. <b>Reflexive P.</b>
6. $\triangle HKI \cong \triangle HKJ$	6. <b>AAS congruence</b>
7. $\overline{JK} \cong \overline{IK}$	7. <b>CPCTC</b>

17. Given:  $\overline{RS} \cong \overline{PQ}$   
 $\angle P$  and  $\angle R$  are right angles  
 Prove:  $\triangle PQS \cong \triangle RSQ$

Statement	Reason
1. $\overline{RS} \cong \overline{PQ}$	1. _____
2. $\angle P$ and $\angle R$ are right angles	2. _____
3. $\triangle PQS$ and $\triangle RSQ$ are right triangles	3. _____
4. $\overline{SQ} \cong \overline{SQ}$	4. _____
5. $\triangle PQS \cong \triangle RSQ$	5. _____

Jan 28-8:49 AM

Jan 29-10:22 AM