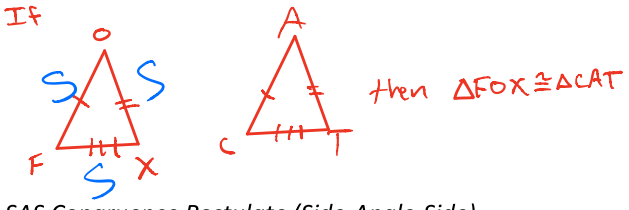
Triangle Congruence – SSS and SAS

Notes Section 4.2 Name_____

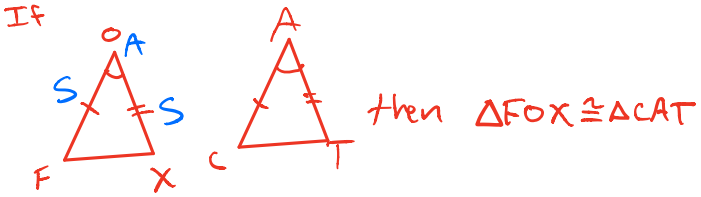
SSS Congruence Postulate (Side-Side-Side)

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

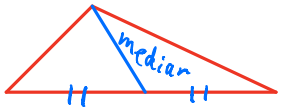


SAS Congruence Postulate (Side-Angle-Side)

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



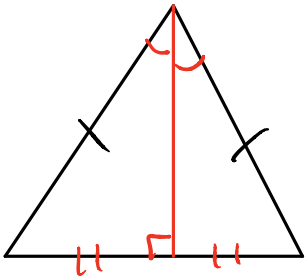
Median: a segment in a triangle that connects a vertex to the midpoint of the opposite side.



Altitude: a segment in a triangle that connects a vertex to the side opposite forming a perpendicular.

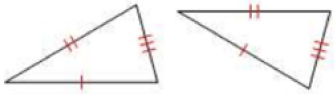
Angle Bisector: a segment that bisects an angle in a triangle and connects a vertex to the opposite side.

Theorem 4.1 – If a median is drawn from the vertex angle of an isosceles triangle, then the median is also an angle bisector and an altitude.



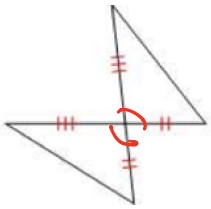
State if the two triangles are congruent. If they are, state why.

1.



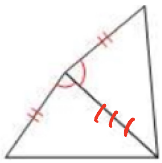
Yes SSS Postulate

2.



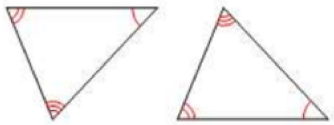
Yes SAS Postulate

3.



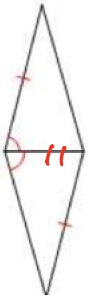
Yes SAS Postulate

4.



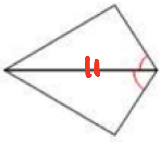
NO

5.



Yes SAS Postulate

6.



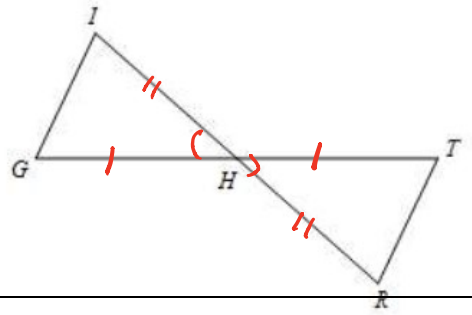
NO

Triangle Congruence – SSS and SAS

Notes Section 4.2 Name_____

Given: H **is the midpoint of** $\overline{GT}$
$\overline{HR} \cong \overline{IH}$

Prove: $\Delta GHI \cong \Delta THR$

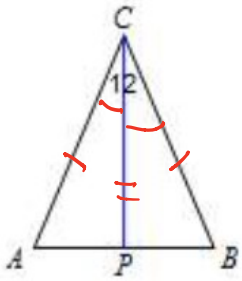


WHY ARE THE TWO TRIANGLES CONGRUENT? SAS

STATEMENTS	REASONS
1. $\overline{HR} \cong \overline{IH}$ H is the midpoint of $\overline{GT}$	1. Given
2. $\overline{GH} \cong \overline{IH}$	2. Def'n of Midpoint
3. $\angle IHG \cong \angle THR$	3. Vertical $\angle$'s Th'm
4. $\Delta GHI \cong \Delta THR$	4. SAS Postulate

Given: ΔACB **is an isosceles triangle with base** $\overline{AB}$
$\overline{CP}$ **is an angle bisector of** $\angle ACB$

Prove: $\Delta ACP \cong \Delta BCP$



WHY ARE THE TWO TRIANGLES CONGRUENT? SAS

STATEMENTS	REASONS
1. ΔACB is an isosceles triangle $\overline{CP}$ is an angle bisector of $\angle ACB$	1. Given
2. $\overline{AC} \cong \overline{BC}$	2. Def'n of isosceles Δ
3. $\angle 1 \cong \angle 2$	3. Def'n of $\angle$ bisector
4. $\overline{CP} \cong \overline{CP}$	4. Reflexive prop $\cong$
5. $\Delta ACP \cong \Delta BCP$	5. SAS Postulate