4.2 SSS and SAS

Triangle Congruence

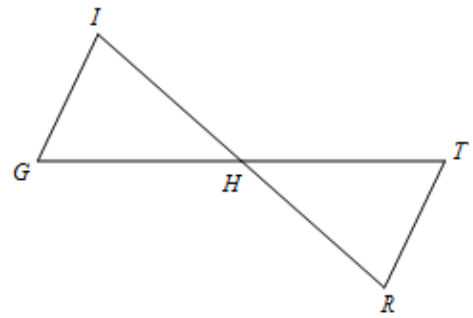| SIDE-SIDE-SIDE	SIDE-ANGLE-SIDE

DOES ANGLE-ANGLE-ANGLE WORK?

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

PROVE IT!

Given: H is the midpoint of $\overline{GT}$
$\overline{HR} \cong \overline{IH}$
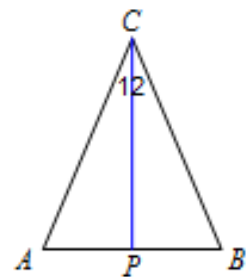
Prove: $\triangle GHI \cong \triangle THR$

WHY ARE THE TWO TRIANGLES CONGRUENT?_____

STATEMENTS	REASONS
1. $\overline{HR} \cong \overline{IH}$ H is the midpoint of $\overline{GT}$	1.
2.	2.
3.	3.
4.	4.

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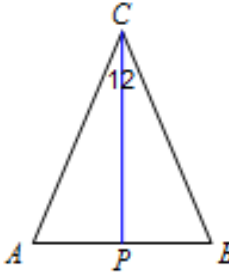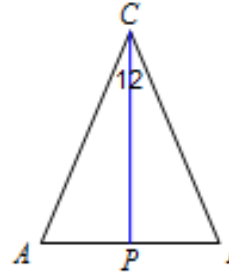$\overline{CP}$ is an angle bisector of $\angle ACB$

Prove: $\triangle ACP \cong \triangle BCP$

WHY ARE THE TWO TRIANGLES CONGRUENT?_____

STATEMENTS	REASONS
1. $\triangle ACB$ is an isosceles triangle $\overline{CP}$ is an angle bisector of $\angle ACB$	1.
2.	2.
3.	3.
4.	4.
5.	5.
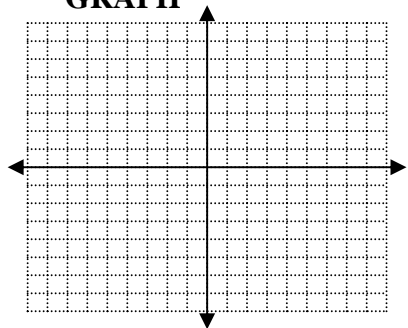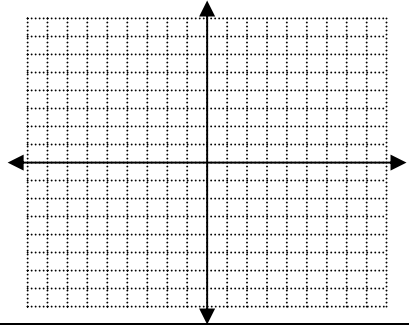
ISOSCELES TRIANGLES ARE COOL!

Properties of Isosceles Triangles

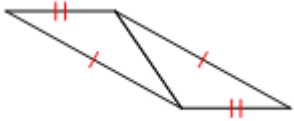| Theorem	If…	Then…
Theorem If a line bisects the vertex angle of an isosceles triangle, then	$\overline{AC} \cong \overline{CB}$ $\angle 1 \cong \angle 2$	

SUMMARIZE YOUR NOTES

Now, summarize your notes here!

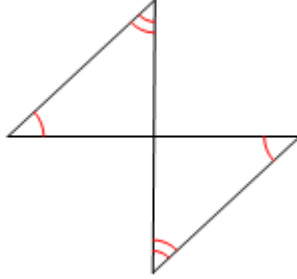| ALGEBRA REVIEW		
SOLVE $5 - 2(3x - 4) = -7$	**GRAPH** $y = -x$	**MULTIPLY** $(5x - 3)(2x + 3)$
SOLVE $\dfrac{2x - 1}{6} = \dfrac{x}{4}$	**GRAPH** $y = \dfrac{2}{3}x$	**FACTOR** $x^2 - 10x - 24$

4.2 PRACTICE

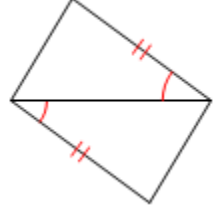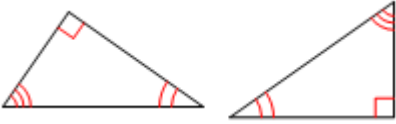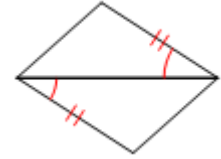**State if the two triangles are congruent. If they are, state why.**
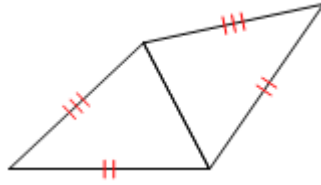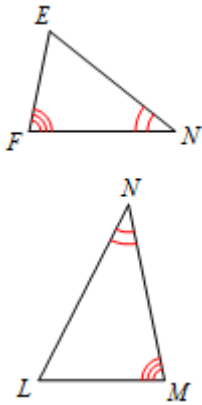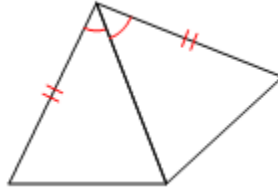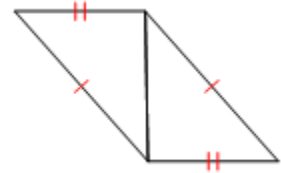
1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Mark the picture. Answer the question. Prove it.

13.
Given: $\angle TWX \cong \angle VWX$
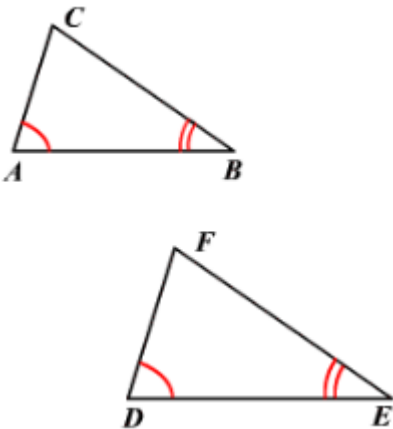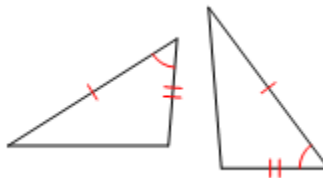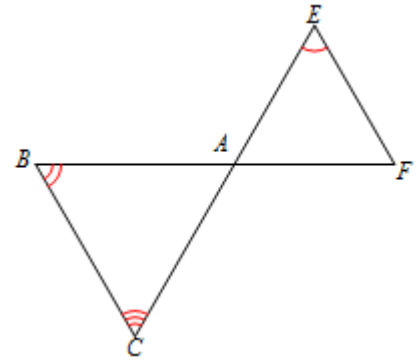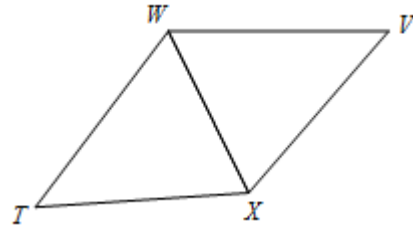$\overline{TW} \cong \overline{WV}$

Prove: $\triangle XWV \cong \triangle XWT$

WHY ARE THE TWO TRIANGLES CONGRUENT?_____

STATEMENTS	REASONS

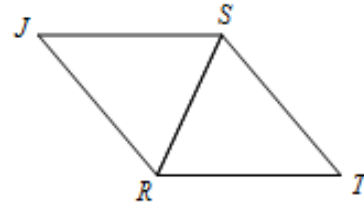**Mark the picture. Answer the question. Prove it.**

14.
Given: $\overline{ST} \cong \overline{SJ}$
$\overline{JR} \cong \overline{TR}$

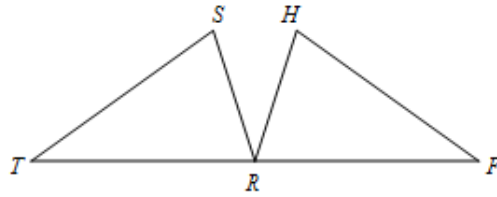Prove: $\triangle RST \cong \triangle RSJ$

WHY ARE THE TWO TRIANGLES CONGRUENT?_____

STATEMENTS	REASONS

4.2 APPLICATION

1. **Mark the picture, state why the two triangles are congruent, then prove it!**

Given: $\angle SRT \cong \angle HRF$

R is the midpoint of $\overline{TF}$
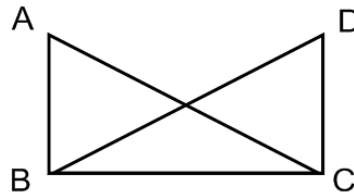
$\overline{SR} \cong \overline{HR}$

Prove: $\triangle TSR \cong \triangle FRH$

STATEMENTS	REASONS

2. **Mark the picture, state why the two triangles are congruent, then prove it!**

Given: $\overline{AB} \cong \overline{DC}$

$\angle ABC$ and $\angle DCB$ are right angles

Prove: $\triangle ABC \cong \triangle DCB$

STATEMENTS	REASONS