11B Intro to Triangle Congruence

Name: _____ Per: _____

SHOW YOUR WORK AND WORK IN PENCIL

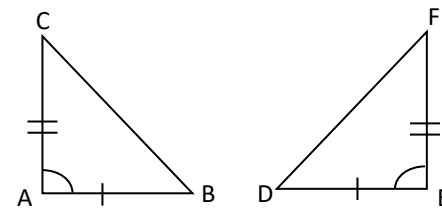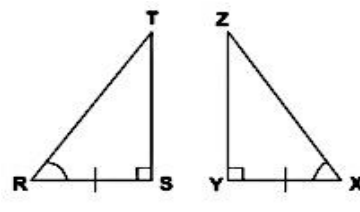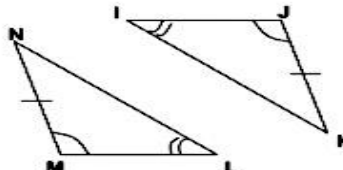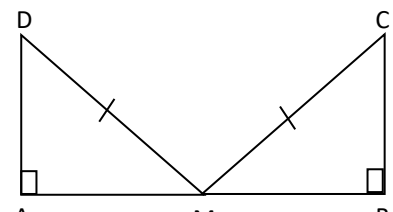**1.** For each pair of triangles, tell which theorem (SSS, SAS, ASA, AAS), make the triangles congruent, if they are. State the congruent triangles. Don't forget about vertical angles and reflexive sides (equal to itself).

a. SSS/ SAS/ ASA/ AAS or not congruent $\triangle ABC \cong \triangle$_____	b. SSS/ SAS/ ASA/ AAS or not congruent $\triangle DCA \cong \triangle$_____	c. SSS/ SAS/ ASA/ AAS or not congruent $\triangle CBA \cong \triangle$_____
d. SSS/ SAS/ ASA/ AAS or not congruent $\triangle STR \cong \triangle$_____	e. SSS/ SAS/ ASA/ AAS or not congruent $\triangle MLN \cong \triangle$_____	f. SSS/ SAS/ ASA/ AAS or not congruent $\triangle MAD \cong \triangle$_____

2. Tell if the marks of the following triangles, can prove congruence. If so, list the theorem you would use. If they are not, explain.

a.

b.
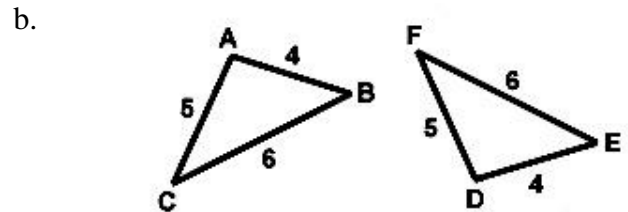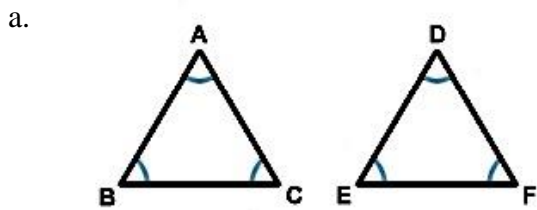
3. Find the exact length of the given line segments. CONSTRUCT the perpendicular bisector for each one. Find the equation of the perpendicular bisector.

Length:_____

Equation of the perpendicular bisector:

Length:_____

Equation of the perpendicular bisector:

4. Find the missing values.

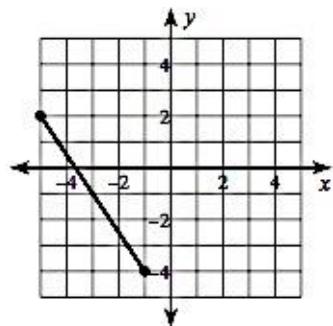|	b.	c. HINT: Remember the arrows on the lines mean that the lines are parallel.

a. (triangle with 66°, 33°, h°)

$\angle h =$ _____°

b. (figure with 80°, x°, 60°, 75°, 25°, y°)

$\angle x =$ _____°

$\angle y =$ _____°

c. (parallel lines figure with 130°, (4y-10)°, 60°, 2x°, 70°)

$y =$ _____

$x =$ _____

5. Use the graph to the right.
   a. Use the Pythagorean Theorem to find the length of each side.
   Find the perimeter of $\triangle ABC$

$$\overline{AB} = \text{_____} \qquad \overline{BC} = \text{_____} \qquad \overline{AC} = \text{_____}$$

Exact perimeter of $\triangle ABC =$ _____ and estimated $\triangle ABC =$ _____

   b. Find the perimeter of $\triangle A'B'C'$, using the Pythagorean Theorem to find the distance/lengths of all sides.

$$\overline{A'B'} \text{_____} \qquad \overline{B'C'} \text{_____} \qquad \overline{A'C'} \text{_____}$$

Exact perimeter of $\triangle A'B'C' =$ _____ and estimated $\triangle A'B'C' =$ _____

   c. Based on the above, what can you say about $\triangle ABC$ and $\triangle A'B'C'$? Explain.

   d. State the translation rule for $\triangle ABC$ to $\triangle A'B'C'$ _____

6. Construct the angle bisector for the following angle.

   a. Convince Judge Judy why the angles are equal.

7. **Fill in the blanks for the following proof.**

Given : $\overline{JK} \cong \overline{NK}$

A is the midpoint of $\overline{JN}$

Prove : $\triangle JAK \cong \triangle NAK$

Statement (I know…)	Reason (Because)
	Given
A is the midpoint of $\overline{JN}$	
_____ $\cong \overline{NA}$	Def. of _____
	_____(equal to itself)
$\triangle JAK \cong \triangle$ _____	By _____ Theorem