

Vocabulary & Theorems to MEMORIZE and KNOW for test.

4.1

- Scalene Δ
- Isosceles Δ
- Equilateral Δ
- Equiangular Δ
- Right Δ
- Obtuse Δ
- Acute Δ
- Exterior Angle
- Exterior Angle Theorem
- Triangle Sum Theorem

4.2

- Congruent Figures/ Δ 's
- Third Angle Theorem

4.4

- SSS \cong Postulate

4.5

- SAS \cong Postulate
- HL \cong Theorem
- Hypotenuse
- Leg (of a right Δ)

4.6

- ASA \cong Postulate
- AAS \cong Theorem

4.7

- CPCTC

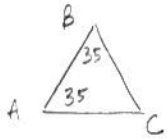
4.8

- Base Angles (of an isosceles Δ)
- Vertex Angle (of an isosceles Δ)
- Base Angle Theorem
- Base Angle Converse
- Base Angle Corollaries

Terms I Know:

Terms I need to study:

1. In $\triangle ABC$, $m\angle A = 35^\circ$ and $m\angle B = 35^\circ$. Is $\triangle ABC$ acute, right, or obtuse? obtuse



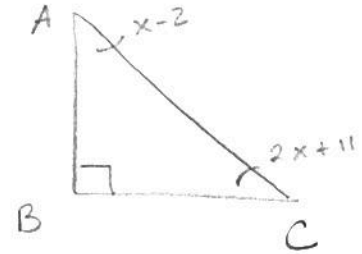
$$m\angle C = 180 - 35 - 35 = 110^\circ$$

2. In $\triangle ABC$, $\angle B$ is a right angle, $m\angle A = x - 2$, $m\angle C = 2x + 11$. Find the measure of each angle of $\triangle ABC$.

$$\begin{aligned} m\angle A &= \underline{25}^\circ \\ m\angle B &= \underline{90}^\circ \\ m\angle C &= \underline{65}^\circ \end{aligned}$$

$$\begin{aligned} x - 2 + 2x + 11 &= 90 \\ 3x + 9 &= 90 \\ 3x &= 81 \\ x &= 27 \end{aligned}$$

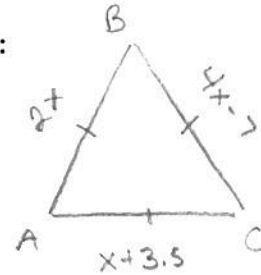
Diagram:



3. $\triangle ABC$ is equilateral with $AB = 2x$, $AC = x + 3.5$, and $BC = 4x - 7$.

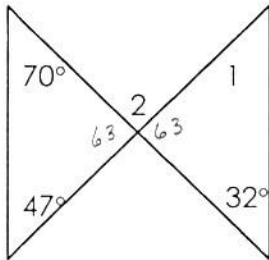
- a. Find the value of x . 3.5
 b. Find the length of \overline{AC} . 7

Diagram:



$$\begin{aligned} 2x &= 4x - 7 \\ 7 &= 2x \\ 3.5 &= x \end{aligned}$$

4. What is the measure of $\angle 1$? What is the measure of $\angle 2$?



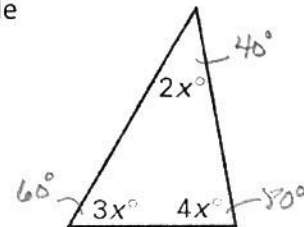
$$m\angle 2 = 47 + 70 = 117^\circ$$

$$m\angle 1 = 180 - 63 - 32 = 85^\circ$$

5. Find the value of x , the measure of each angle, and classify the triangle by its angles.

$$\begin{aligned} 2x + 3x + 4x &= 180 \\ 9x &= 180 \\ x &= 20 \end{aligned}$$

The \triangle is ACUTE

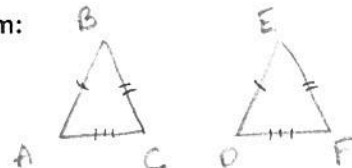


6. Given $\triangle ABC \cong \triangle DEF$, name three pairs of congruent sides & congruent angles. (Hint: DRAW \triangle 's)

Angles: $\overline{AB} \cong \overline{DE}$
 Sides: $\overline{BC} \cong \overline{EF}$
 $\overline{AC} \cong \overline{DF}$

Sides: $\angle A \cong \angle D$
 Angles: $\angle B \cong \angle E$
 $\angle C \cong \angle F$

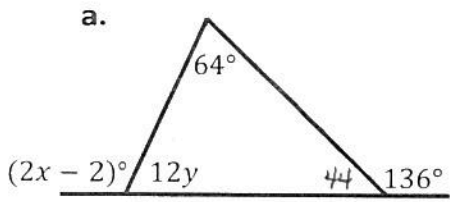
Diagram:



7. Complete the statements, if $\triangle BAT \cong \triangle PIG$

- a. $\triangle TAB \cong \triangle \underline{GIP}$
 b. $\triangle ABT \cong \triangle \underline{IPG}$

8. Find the value of the variable(s).



$$2x - 2 = 64 + 44$$

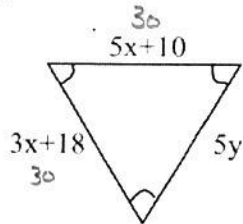
$$2x = 110$$

$$x = 55$$

$$180 = 64 + 44 + 12y$$

$$72 = 12y$$

$$6 = y$$



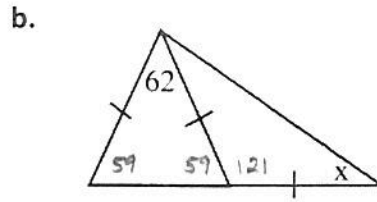
$$5x + 10 = 3x + 18$$

$$2x = 8$$

$$x = 4$$

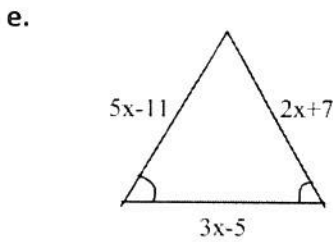
$$30 = 5y$$

$$6 = y$$



$$\frac{180 - 121}{2} = x$$

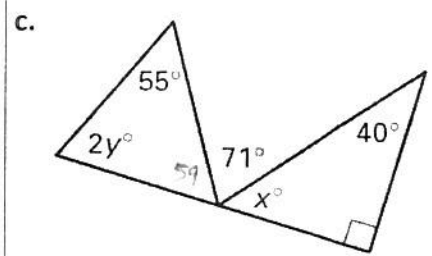
$$29.5 = x$$



$$5x - 11 = 2x + 7$$

$$3x = 18$$

$$x = 6$$

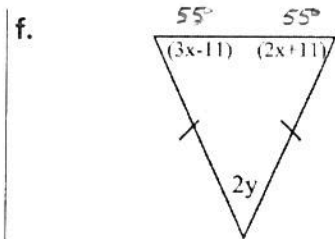


$$x = 50$$

$$180 = 55 + 59 + 2y$$

$$66 = 2y$$

$$33 = y$$



$$3x - 11 = 2x + 11$$

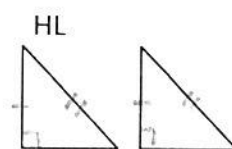
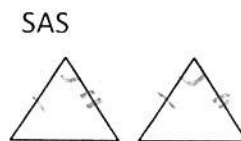
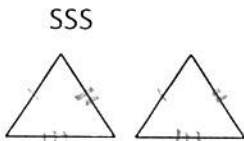
$$x = 22$$

$$180 = 55 + 55 + 2y$$

$$70 = 2y$$

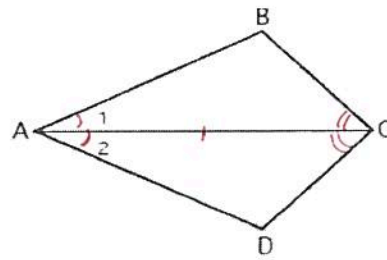
$$35 = y$$

9. There are 5 methods for proving two triangles are congruent. Label the markings on each of the pairs of triangles for the indicated method.



10. Given: $\angle 1 \cong \angle 2$; \overline{AC} bisects $\angle BCD$

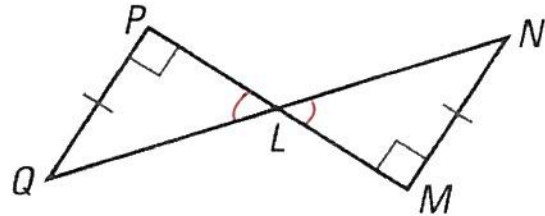
Prove: $\overline{AB} \cong \overline{AD}$



Statements	Reasons
1. $\angle 1 \cong \angle 2$; \overline{AC} bisects $\angle BCD$	1. Given
2. $\angle BCA \cong \angle DCA$	2. Def of \angle Bisector
3. $\overline{AC} \cong \overline{AC}$	3. Reflexive
4. $\triangle ABC \cong \triangle ADC$	4. ASA \cong Post
5. $\overline{AB} \cong \overline{AD}$	5. CPCTC

11. Given: $\overline{PQ} \cong \overline{MN}$, $\angle P$ and $\angle M$ are right angles.

Prove: $\overline{QL} \cong \overline{NL}$



Statements	Reasons
1. $\overline{PQ} \cong \overline{MN}$, $\angle P$ and $\angle M$ are Rt angles	1. Given
2. $\angle PLQ \cong \angle MLN$	2. Vert \angle 's \cong Thm
3. $\angle QPL \cong \angle NML$	3. Rt \angle 's \cong Thm
4. $\triangle QPL \cong \triangle NML$	4. AAS \cong Thm
5. $\overline{QL} \cong \overline{NL}$	5. CPCTC