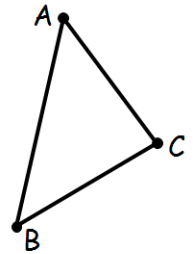


### Section 3.4: Angles of a Triangle Notes

A **triangle** is the figure formed by \_\_\_\_\_ segments joining \_\_\_\_\_ noncollinear points.

- ◆ Each of the points is a \_\_\_\_\_ of the triangle.
  - Vertices : \_\_\_\_\_
  - Angles : \_\_\_\_\_
- ◆ The segments are the \_\_\_\_\_ of the triangle.
  - Sides : \_\_\_\_\_



Example:  $\triangle ABC$

Side _____ is <b>opposite</b> $\angle A$ .	Side AB is <b>included between</b> $\angle$ _____ and $\angle$ _____
Side _____ is <b>opposite</b> $\angle B$ .	Side AC is <b>included between</b> $\angle$ _____ and $\angle$ _____
Side _____ is <b>opposite</b> $\angle C$ .	Side BC is <b>included between</b> $\angle$ _____ and $\angle$ _____

**Triangles can be classified by...**

- ◆ the number of congruent *sides* it has.

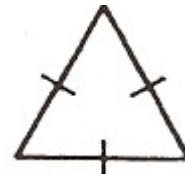
\_\_\_\_\_  $\triangle$   
**No** sides congruent.



\_\_\_\_\_  $\triangle$   
**Two** sides congruent.



\_\_\_\_\_  $\triangle$   
**Three** sides congruent.



- ◆ their *angles*.

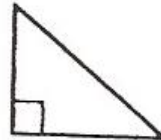
\_\_\_\_\_  $\triangle$   
 3 **acute**  $\angle$ s.



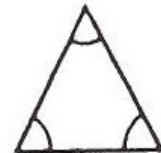
\_\_\_\_\_  $\triangle$   
 One **obtuse**  $\angle$ .



\_\_\_\_\_  $\triangle$   
 One **right**  $\angle$ .



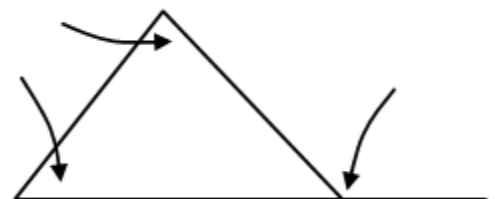
\_\_\_\_\_  $\triangle$   
**All congruent**  $\angle$ s.



Theorem 3-11: The **sum** of the angles of a triangle is \_\_\_\_\_.

An \_\_\_\_\_ angle is formed when one side of a triangle is extended.

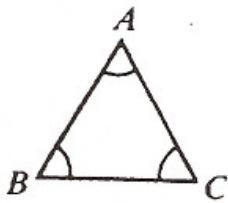
The \_\_\_\_\_ angles are two angles of a triangle not adjacent to the exterior angle.



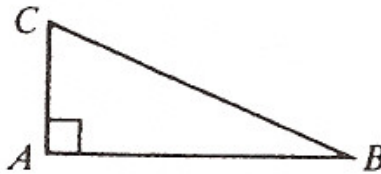
**Theorem 3-12:** The measure of an \_\_\_\_\_ angle of a triangle equals the sum of the measures of the two \_\_\_\_\_ angles.

**Complete the following.**

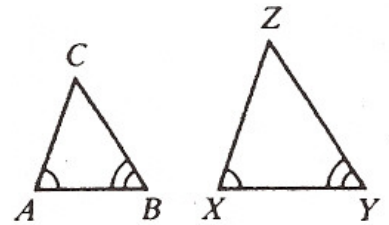
1) If  $\angle A \cong \angle B \cong \angle C$ , then  
 $m\angle A = m\angle B = m\angle C =$   
 \_\_\_\_\_.



2) If  $m\angle A = 90$ , then  
 $m\angle B + m\angle C =$  \_\_\_\_\_.

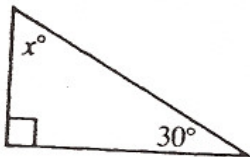


3) If  $\angle A \cong \angle X$  and  $\angle B \cong \angle Y$ ,  
 Then  $\angle$ \_\_\_\_\_  $\cong$   $\angle$ \_\_\_\_\_.

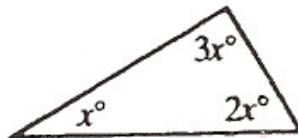


**Find the value of x.**

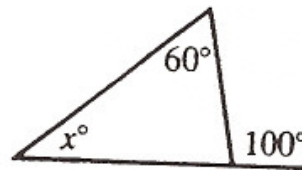
4)  $x =$  \_\_\_\_\_



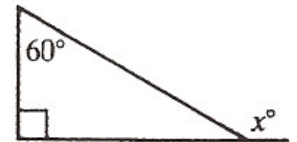
5)  $x =$  \_\_\_\_\_



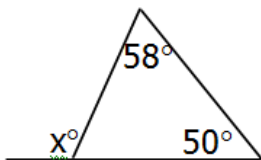
6)  $x =$  \_\_\_\_\_



7)  $x =$  \_\_\_\_\_

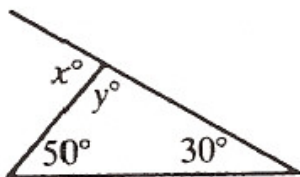


8)  $x =$  \_\_\_\_\_

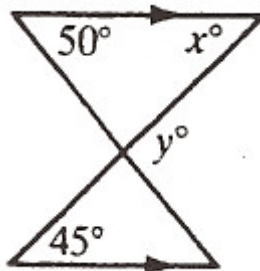


**Find the values of x and y.**

8)  $x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_



9)  $x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_



10)  $x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_

