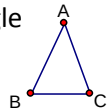
Geometry A
Section 4.1 Notes

Name : _____
Date : _____ Period : ____

- I can classify triangles and find measures of their angles

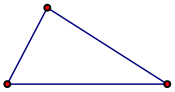
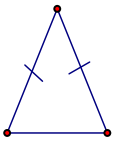
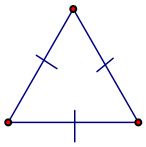
A ***triangle*** is a polygon with three sides. We name a triangle using the vertices of the triangle. For example, the triangle 

is called "triangle ABC" or using notation it would be $\triangle ABC$.

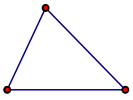
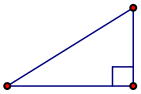
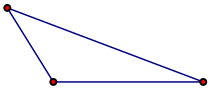
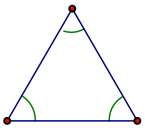
We can classify a triangle using its side lengths and its angle measures.

Using the page from the book displayed on the board, please fill in the following information :

CLASSIFYING TRIANGLES BY SIDE LENGTH

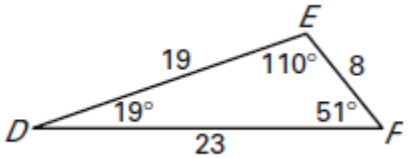
Scalene Triangle	Isosceles Triangle	Equilateral Triangle
		
_____	_____	_____

CLASSIFYING TRIANGLES BY ANGLE MEASURE

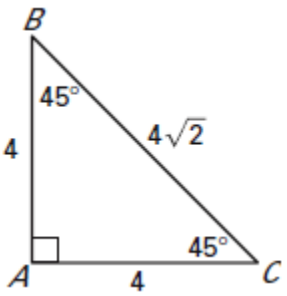
Acute triangle	Right Triangle	Obtuse Triangle	Equiangular Triangle
			
_____	_____	_____	_____

<u>Example 1: Classify the triangle by its sides and by its angles.</u>

a.

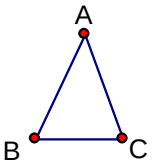


b.



Every triangle has three angles, one at each vertex inside the triangle. These angles are called ***interior angles.***

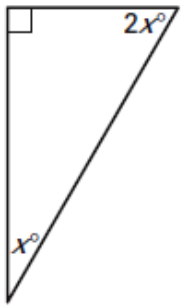
Theorem 4.1 – Triangle Sum Theorem
The sum of the measure of the interior angles of a triangle is _____.



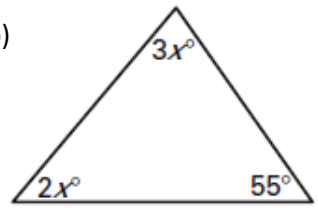
$m\angle A + m\angle B + m\angle C =$ _____

Example 2: Find angle measures in triangles.
Find x. Then classify the triangle by its angles.

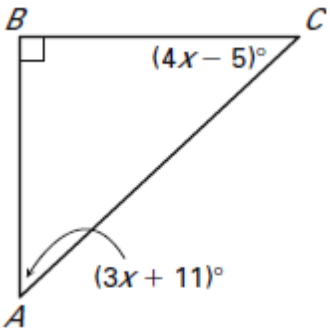
a)



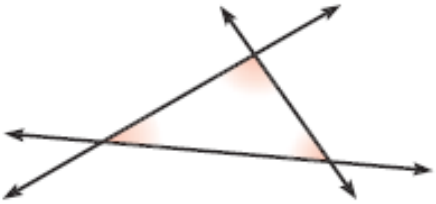
b)



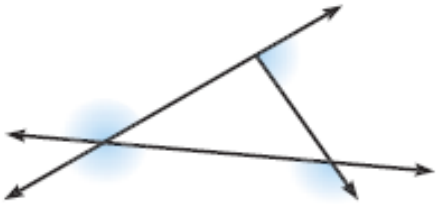
c)



ANGLES When the sides of a polygon are extended, other angles are formed. The original angles are the **interior angles**. The angles that form linear pairs with the interior angles are the **exterior angles**.



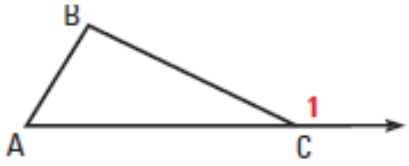
interior angles



exterior angles

THEOREM 4.2 – Exterior Angle Theorem

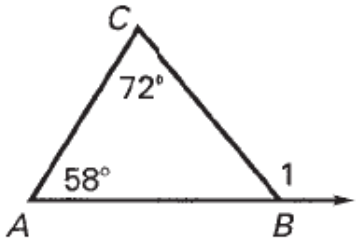
Words The measure of an exterior angle of a triangle is equal to the _____ of the measures of the two nonadjacent _____ angles.



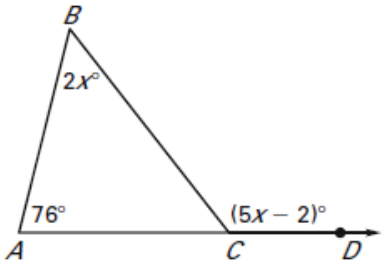
Symbols: $m\angle 1 = m\angle A + $ _____

Example 3 : Find an Angle Measure

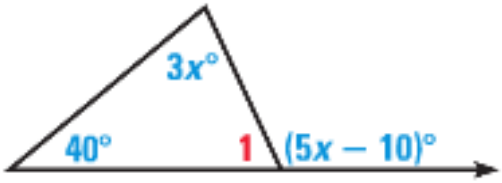
a) Find $m\angle 1$.



b) Find $m\angle BCD$.



c) Find $m\angle 1$.



d) Find $m\angle JKM$.