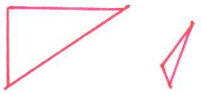
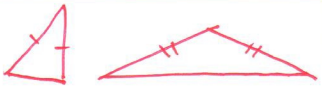
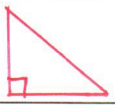
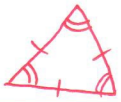
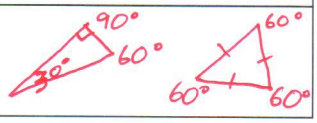
GEOMETRY 11

Name: Key Date: Period:

SECTION 11.2 TWO-DIMENSIONAL FIGURES: TRIANGLE

VOCABULARY

DEFINITION	EXAMPLE
Polygon: A polygon is a closed shape made of 3 or more line segments	
Scalene Triangle: All 3 sides are different lengths	
Isosceles Triangle: At least 2 sides have equal length	
Right Triangle: One angle has 90°	
Equilateral Triangle: All 3 sides are congruent and all 3 angles are congruent	
Acute Triangle: All 3 angles are acute.	
Obtuse Triangle: One angle is obtuse.	
Triangle Sum Theorem: The sum of the angles in any triangle is 180°	

Big Idea: What are some properties and attributes of triangles?

POLYGONS

Given the number of sides in the table below, write the typical names of the following polygons.

Number of Sides	Name	Number of Sides	Name
3	triangle	7	heptagon
4	quadrilateral	8	octogon
5	pentagon	9	nonagon
6	hexagon	10	decagon

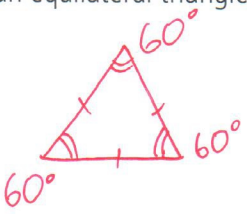
TRIANGLES

Triangles are 3-sided polygons and are the simplest polygons. Although they have only 3 sides and 3 angles, triangles come in many different shapes with useful properties. Describe their attributes in the table.

Characterized by Their Angles	Characterized by Their Sides
Right Triangle one right angle	Scalene Triangle all side lengths different
Obtuse Triangle one obtuse angle	Isosceles Triangle atleast two side lengths equal
Acute Triangle three acute angles	Equilateral Triangle all side lengths equal

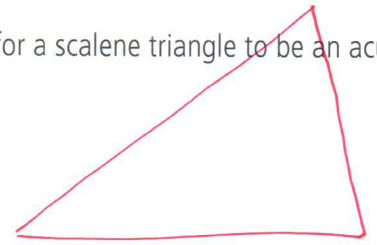
CLASSIFYING TRIANGLES ACTIVITY (Justify your answers in both words and a picture, if possible):

1. Can an equilateral triangle be a right triangle? No.



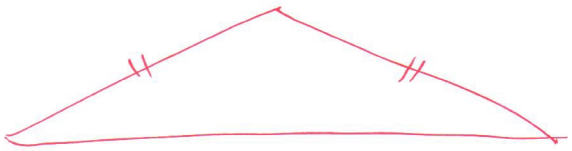
$60° \neq 90°$

2. Is it possible for a scalene triangle to be an acute triangle? Yes.



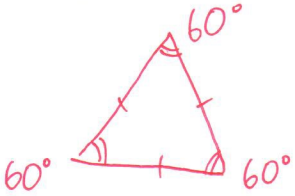
all angles acute

3. Can you draw a triangle that is both obtuse and isosceles? Yes.



one obtuse angle

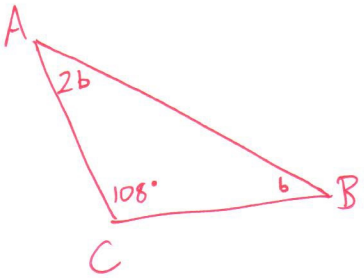
4. Is it possible for an obtuse triangle to also be equilateral? No.



$60° < 90° <$ obtuse angle

EXAMPLE 3

In a triangle ABC, m(∠C) = 108° and the measure of ∠A is twice the measure of ∠B. What are the measures of ∠A and ∠B?



$108° + 2b + b = 180°$

$108° - 108° + 3b = 180° - 108°$

$3b = 72°$

$b = 24$

$m\angle A = 2b = \boxed{48°}$

$m\angle B = \boxed{24°}$

SUMMARY (What I learned today)