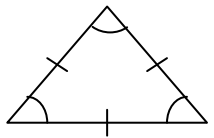Name: _____ Date: _____ Sections 12-1C & Lesson 11

12-1C TRIANGLES & LESSON 11 DRAWING TRIANGLES

TRIANGLE SUM THEOREM - The angle measures of a triangle in a plane add to ___180°___.

$m\angle x + m\angle y + m\angle z = 180°$

CLASSIFY BY SIDE LENGTH

___Equilateral___ **Triangle**

Contains __3__ congruent sides
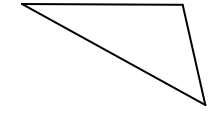
Contains __3__ congruent angles

___Isosceles___ **Triangle**

Contains __2__ congruent sides

Contains __2__ congruent angles
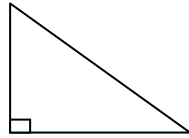
___Scalene___ **Triangle**

Contains __no__ congruent sides
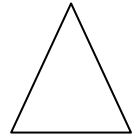
Contains __no__ congruent angles

CLASSIFY BY ANGLE MEASURE
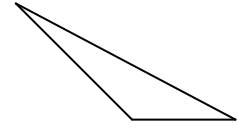
___Right___ **Triangle**

Contains exactly one __right__ angle

___Acute___ **Triangle**
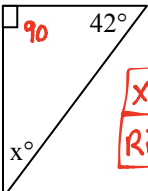
Contains three __acute__ angles

___Obtuse___ **Triangle**

Contains exactly one __obtuse__ angle
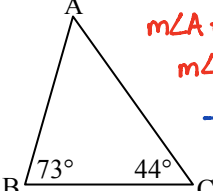
Ex. 1: Find the missing angle in the triangles and classify the type of triangle according to the angle measure.

A. Find x.
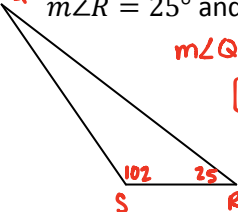
90   42° $180-90-42$

$x = 48°$

Right Triangle

$x°$

B. Find $m\angle A$.

A

$m\angle A + 73 + 44 = 180$
$m\angle A + 117 = 180$
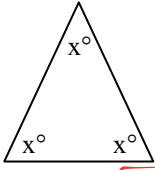$-117 \quad -117$
$m\angle A = 63°$

73°   44°   C

B

Acute Triangle

C. Find $m\angle Q$ in $\triangle$ QRS if $m\angle R = 25°$ and $m\angle S = 102°$

Q

$m\angle Q = 180 - 102 - 25$
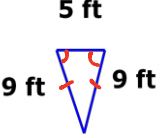$m\angle Q = 53°$

102   25
S   R

Obtuse Triangle

D. Find x.

$x°$
$x°$ $x°$

$x + x + x = 180$
$\dfrac{3x}{3} = \dfrac{180}{3}$
$x = 60°$

Acute Triangle

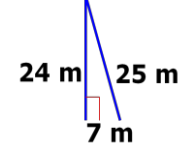**Ex. 2:** Classify each triangle according to its sides and angles.
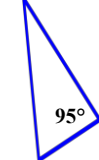
A.
5 ft
9 ft   9 ft

isoxceles, acute

B.
24 m   25 m
7 m

scalene, right

C.
95°

obtuse, scalene

D.

acute, equilateral

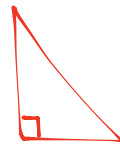Name: _____ Date: _____Sections 12-1C & Lesson 11

Ex. 3: Draw a triangle with the given specifications. Then, classify each triangle according to its sides and angles.

A. Three congruent angles and three congruent sides

acute
equilateral

B. One right angle and no congruent sides

right
scalene

Lesson 11: Homework Activity

Problem 1: Complete the tables by writing YES or NO in the spaces below.

A. Determine whether the lengths form a triangle.

	Side 1	Side 2	Side 3	Form a triangle?
1.	6 cm	8 cm	10 cm	
2.	8 cm	8 cm	13 cm	
3.	4 cm	8 cm	15 cm	
4.	4 cm	6 cm	8 cm	
5.	6 cm	4 cm	10 cm	
6.	10 cm	4 cm	13 cm	
7.	8 cm	10 cm	15 cm	
8.	6 cm	8 cm	15 cm	
9.	8 cm	4 cm	13 cm	
10.	13 cm	10 cm	15 cm	

B. Determine whether the angles form a triangle.

	Angle 1	Angle 2	Angle 3	Form a triangle?
1.	30°	60°	90°	
2.	30°	45°	60°	
3.	45°	45°	90°	
4.	43°	35°	102°	
5.	27°	99°	55°	
6.	90°	31°	59°	
7.	50°	60°	60°	
8.	50°	60°	70°	
9.	25°	25°	105°	
10.	120°	40°	10°	

Problem 2: Answer the following questions in complete sentences.

A. Using Problem 1A compare the sum of two sides to the length of a third side. Describe any patterns found.

B. Using Problem 1B compare the sum of the angle measures. Describe any patterns found.

HW: GM7 p. 684 (2-40 even, omit 26) & Complete Lesson 11 Activity in Notes