TOPIC: **4.1 Apply Triangle Sum Properties**	NAME: Mrs. H DATE: KEY

ESSENTIAL QUESTION: How can you find the measure of 3rd ∠ given the other 2 ∠s?

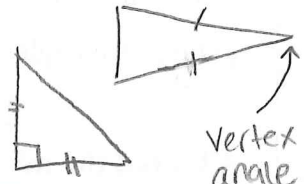
QUESTIONS:

Vocabulary

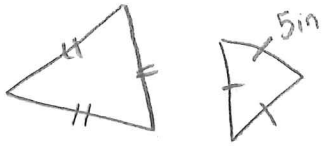
Classifying Triangles by Side:

scalene triangle
NO ≅ sides

isosceles triangle
2 ≅ sides

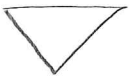


equilateral triangle
3 ≅ sides

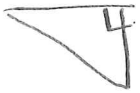


Classifying Triangles by Angle:

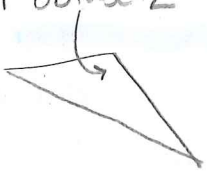
acute triangle
3 acute ∠s (∠ < 90°)



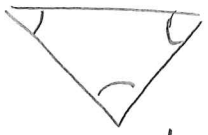
right triangle
one rt ∠



obtuse triangle
1 obtuse ∠ (90° < deg. ∠ < 180)



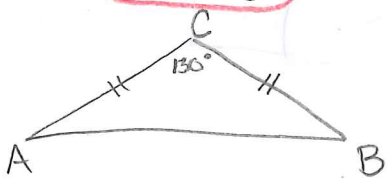
equiangular triangle
3 ≅ ∠s



After 4.1 Thm note all ∠s = 60°

A1. Sketch and properly mark and label the described triangle.

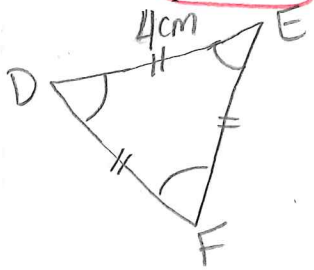
a. Obtuse isosceles triangle ABC with vertex angle C.



*Vertex ∠ between 2 ≅ sides

b. Equilateral equiangular ΔDEF with perimeter 12 cm.

sides angles

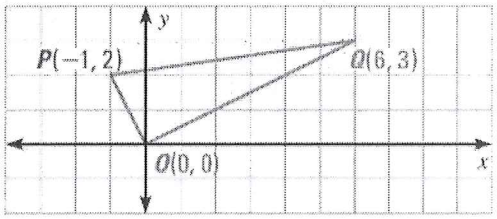


SUMMARY:

A Δ's ∠s sum is 180° so given 2 ∠s subtract them from 180° to find the 3rd.

QUESTIONS:

A2. Classify ΔPQO by its sides.



$OQ = \sqrt{6^2+3^2} = \sqrt{36+9} = \sqrt{45}$

$PQ = \sqrt{1^2+7^2} = \sqrt{1+49} = \sqrt{50}$

$PO = \sqrt{1^2+2^2} = \sqrt{1+4} = \sqrt{5}$

NO sides $\cong$ ∴ Scalene Δ

Theorem 4.1: Triangle Sum Theorem

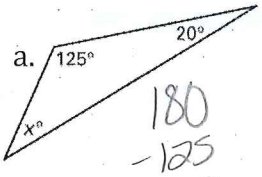
go back to Equiangular Δ

The sum of the measures of the interior angles of a triangle is 180°.

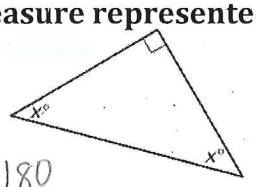
(The acute angles of a right triangle are Complementary.)

↑ Corollary (statement proved using a thm)

* **A3. Find the missing angle measure represented by x.**

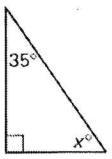
a. 

180
−125
−20
35°

b. 

180
−90
90 ÷ 2 = 45

X = 45°

c. 

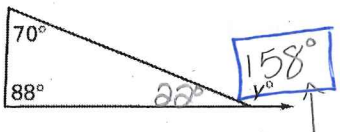
90
−35
55°

Angle

Theorem 4.2: Exterior Theorem

The measure of an exterior angle of a triangle is equal to the sum of of the two nonadjacent interior angles.

* A4. Find the value of y two different ways.



180
−70
−88
22

L.P.
180
−22
158

70
+88
158

sum of 2 ∠s that are nonadjacent

A5. Find $m\angle 3$. Give the reason(s).

$m\angle 1 = 70°$ Δ Sum Thm.

$m\angle 2 = 65°$ Linear Triple

$m\angle 3 = 95°$ Δ Sum Thm