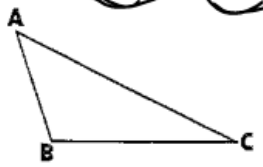
Types of Triangles – Classify by **SIDES**

Circle the correct name(s) of the triangle below:

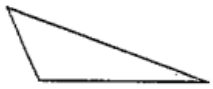
ΔA ΔB ΔC ΔABC ΔCBA ΔACB



SCALENE Δ

How many ≅ sides does a scalene Δ have? none

Mark the sides of the triangle
To show that NONE are the same →



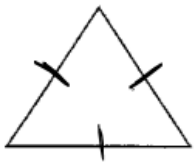
EQUILATERAL Δ

How many ≅ sides **must** an equilateral Δ have? 3

Can it have more than that amount? no

Can it have less than that amount? no

Mark the ≅ sides in the triangle →



ISOSCELES Δ

How many ≅ sides **must** an isosceles Δ have?

Can it have more than that amount? at least 2

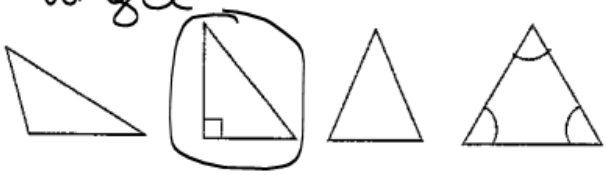
Can it have less than that amount? yes

Mark the ≅ sides in the triangle →

Types of Triangles – Classify by **ANGLES**

RIGHT Δ

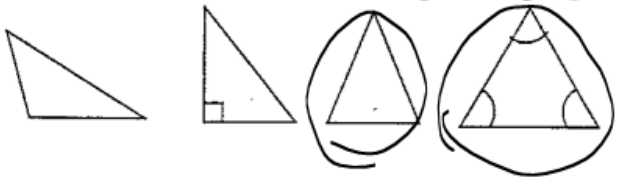
* one right angle



Circle the RIGHT Δ *(there may be more than one)*

ACUTE Δ

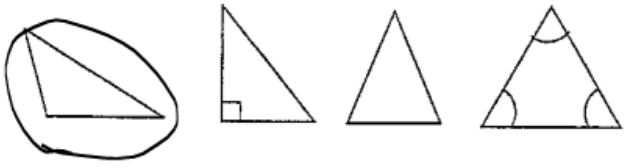
all 3 ∠s are acute



Circle the ACUTE Δ *(there may be more than one)*

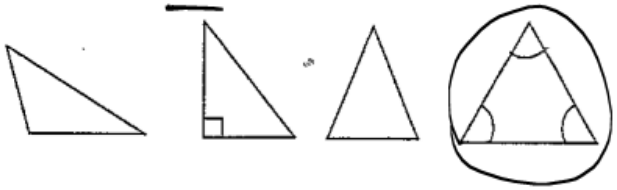
OBTUSE Δ

* one ∠ is obtuse



Circle the OBTUSE Δ *(there may be more than one)*

EQUIANGULAR Δ



Circle the EQUIANGULAR Δ *(there may be more than one)*

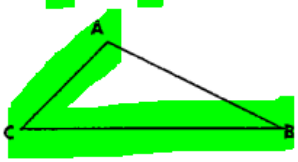
PARTS OF A TRIANGLE

INCLUDED ANGLE

*∠ btwn given sides

What is the included angle for $\overline{AC}$ and $\overline{BC}$?

∠A ∠B (∠C)

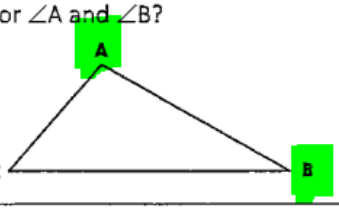


INCLUDED SIDE

*Side btwn given ∠s

What is the included side for ∠A and ∠B?

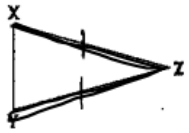
$\overline{AC}$ $\overline{CB}$ ($\overline{AB}$)



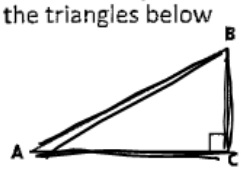
LEGS

*≅ sides of ISOS △ *Sides adj to the ∠

Identify the legs in each of the triangles below



$\overline{XY}$ ($\overline{YZ}$) ($\overline{XZ}$)

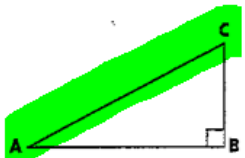


($\overline{AC}$) ($\overline{CB}$) $\overline{AB}$

HYPOTENTUSE

What is the hypotenuse for ΔABC?

($\overline{AC}$) $\overline{CB}$ $\overline{AB}$

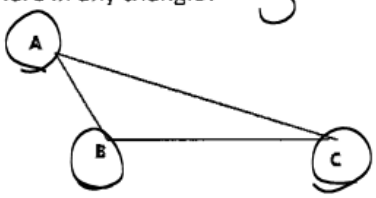


*Side across the ∠

VERTEX of a triangle

How many vertices are there in any triangle? 3

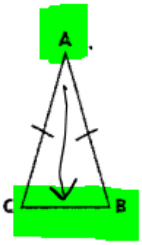
What are the vertices of this triangle?



A, B, C

VERTEX ANGLE in an isosceles △ (p.236)

What is the vertex angle in this triangle?

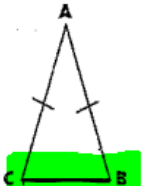


(∠A) ∠B ∠C

*∠ btwn ≅ sides

BASE in an isosceles △

What is the base in this triangle?

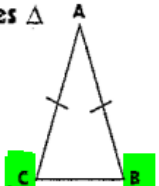


$\overline{AC}$ ($\overline{CB}$) $\overline{AB}$

*Side across from vertex ∠

BASE ANGLES in an isosceles △

What are the base angles in this triangle?

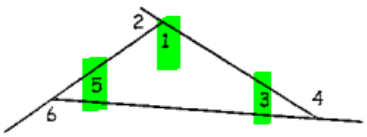


∠A (∠B) (∠C)

*angles adj to the base

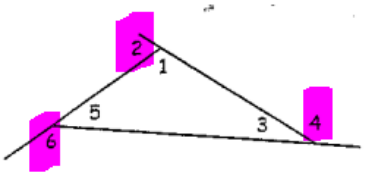
INTERIOR ∠ of a △

Circle the interior angles in the picture below.



EXTERIOR ∠ of a △

Circle the exterior angles in the picture below.

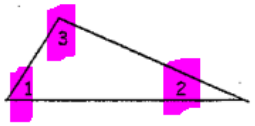


TRIANGLE THEOREMS

Define "corollary": a statement that can be proven by using the theorem

△ Sum Theorem:

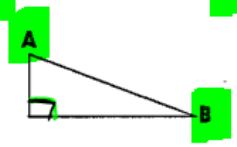
The sum of the interior angles in a triangle is 180°



$m\angle 1 + m\angle 2 + m\angle 3 = 180°$

Corollary to △ Sum Thm:

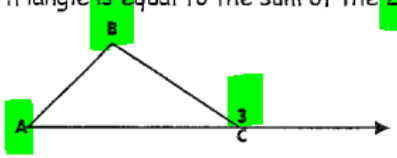
The acute angles in a RIGHT △ are complementary



∠A and ∠B are complementary

Exterior ∠ Theorem:

The measure of the exterior∠ of a triangle is equal to the sum of the 2 non-adjacent interior∠'s



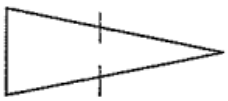
$m\angle A + m\angle B = m\angle 3$

PRACTICE PROBLEMS *(All answers are on the bottom of page 23)*

1. CLASSIFYING TRIANGLES -

Use the definitions and pictures on **page 20** to classify the triangles by their **SIDES** and **ANGLES**.

a.)



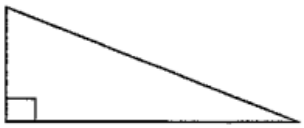
By sides...

(isosceles) equilateral scalene

By angles...

right (acute) obtuse equiangular

b.)



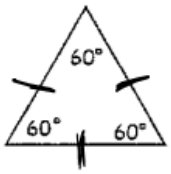
By sides...

isosceles equilateral (scalene)

By angles...

(right) acute obtuse equiangular

c).



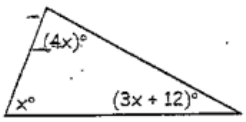
By sides...

(isosceles) (equilateral) scalene

By angles...

right (acute) obtuse (equiangular)

2.



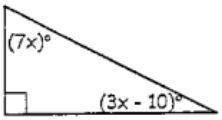
$x+4x+3x+12=180$

$8x+12=180$

$8x=168$

$x=21$

3.

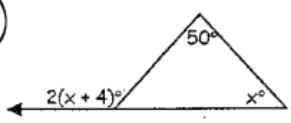


$7x+3x-10=90$ or

$7x+3x-10+90=180$

$x=10$

4.

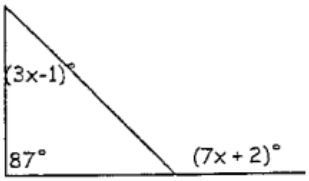


$50+x=2x+8$

$50=x+8$

$x=42$

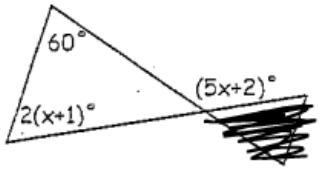
5.



$3x-1+87=7x+2$

$x=21$

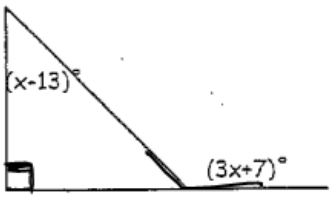
6.



$60+2x+2=5x+2$

$x=20$

7.



$x-13+90=3x+7$

$x=35$