

Parts of a Triangle:

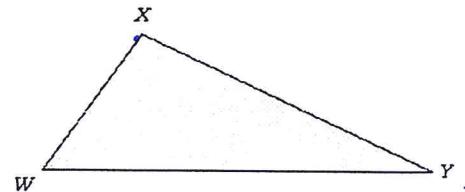
Triangle – a three-sided polygon

Name – ΔWXY , ΔYXW

Sides – XW , XY , WY

Vertices – Two lines meet (3)

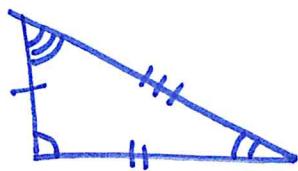
Angles – $\angle X$, $\angle Y$, $\angle W$



Sum of the Angles of a Triangle $m\angle X + m\angle Y + m\angle W = 180^\circ$

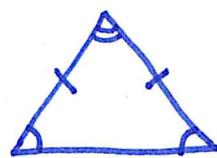
Classifying Triangles by Sides:

Scalene Δ



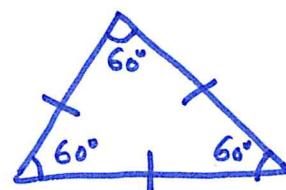
each side and angle is different.

Isosceles Δ



Two Sides and two angles are Congruent.

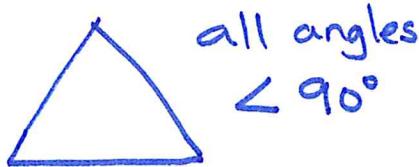
Equilateral Δ



All sides and Angles are Congruent

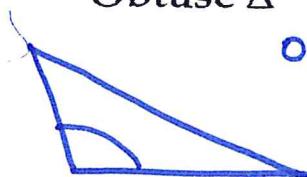
Classifying Triangles by Angles:

Acute Δ



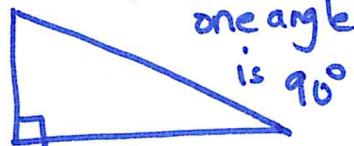
all angles $< 90^\circ$

Obtuse Δ



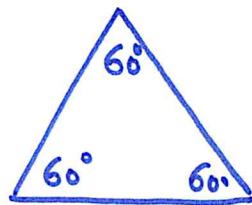
one angle $> 90^\circ$

Right Δ



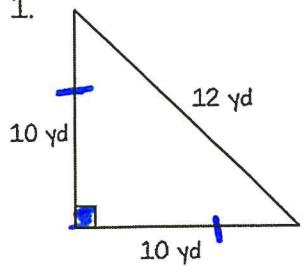
one angle is 90°

Equiangular Δ -

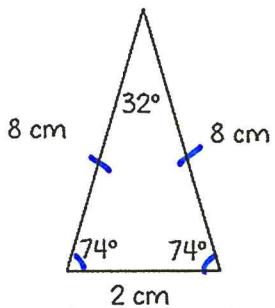


all angles are equal to 60°

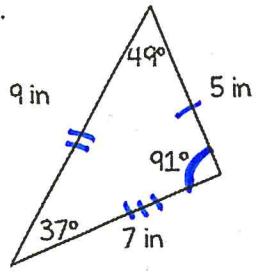
1.

right triangleisosceles triangle" Right isosceles triangle"

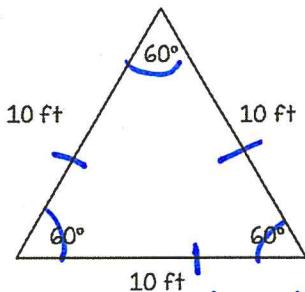
2.

Acute Triangleisosceles triangle" Acute isosceles triangle"

3.

Obtuse triangleScalene triangle" Obtuse scalene triangle"

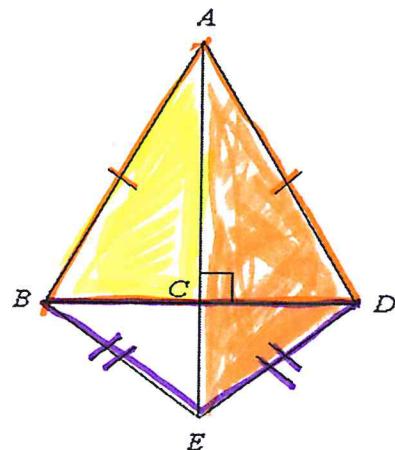
4.

(Acute) equiangular triangleequilateral triangle

5. Identify the indicated type of triangle in the figure.

a.) isosceles triangles

$$\Delta ABD, \Delta DEB$$



b.) scalene triangles

$$\Delta BCA, \Delta ADE$$

6. Identify the indicated types of triangles.

- a.) right b.) isosceles

$$\Delta BAE$$

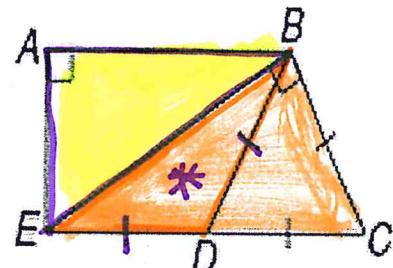
$$\Delta BDE$$

c.) scalene

d.) obtuse

$$\Delta EAB$$

$$\Delta EDB$$

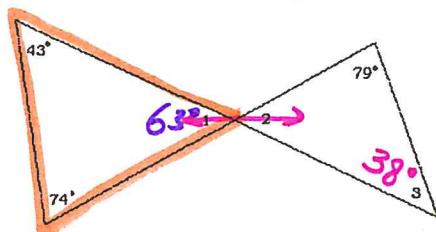


Unit 3-Triangles Notes

Name: _____

Example #1: Find the missing angle measures.

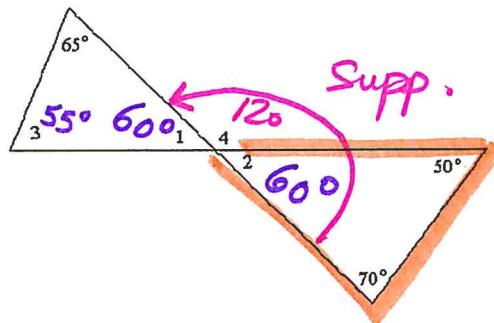
a.) Sum Angles = 180°



$$m\angle 1 = 180^\circ - 74 - 43 \text{ Vertical}$$

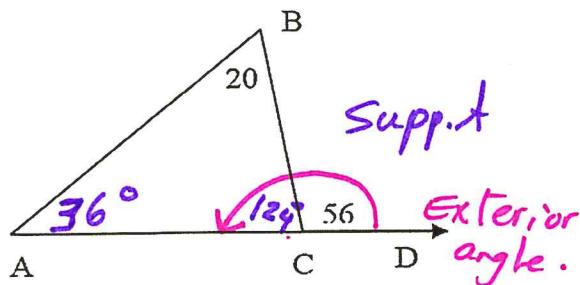
$$m\angle 1 = 63^\circ$$

b.)



Example #2: Find the measure of each of the following angles.

a.)

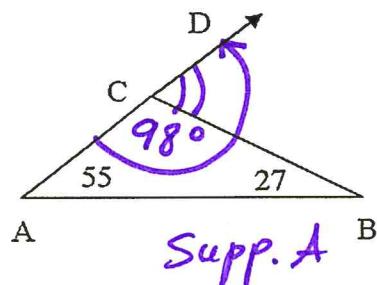


$$m\angle C = 180^\circ - 56^\circ = 124^\circ$$

$$m\angle A = 180^\circ - 20^\circ - 124^\circ$$

$$m\angle A = 36^\circ$$

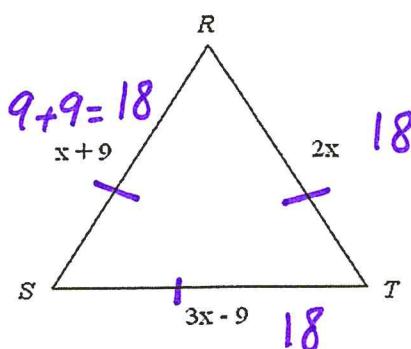
b.)



$$m\angle DCB = 180^\circ - 98^\circ$$

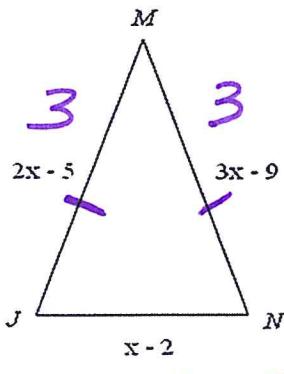
$$m\angle DCB = 82^\circ$$

Example #3: Find x and the measure of each side of equilateral triangle RST.



$$\begin{aligned} 2x &= x + 9 \\ -x &\quad -x \\ \hline x &= 9 \end{aligned}$$

Example #4: Find x , JM , MN , and JN if $\triangle JMN$ is an isosceles triangle with $\overline{JM} \cong \overline{MN}$.



$$\begin{aligned} 2x - 5 &= 3x - 9 \\ -2x &\quad \cancel{-2x} \\ -5 &= x - 9 \\ +9 &\quad +9 \\ \hline x &= 4 \end{aligned}$$

$$\begin{aligned} 2x - 5 &= 2(4) - 5 \\ &= 3 \end{aligned}$$

$$4 - 2 = 2$$

5) Find x and the measure of each side of the triangle.

- a.) $\triangle ABC$ is equilateral with $AB = 3x - 2$, $BC = 2x + 4$, and $CA = x + 10$.

$$\begin{aligned} BC &\cong CA \\ 2x + 4 &= x + 10 \\ -x &\quad -x \\ x + 4 &= 10 \Rightarrow x = 6 \end{aligned}$$

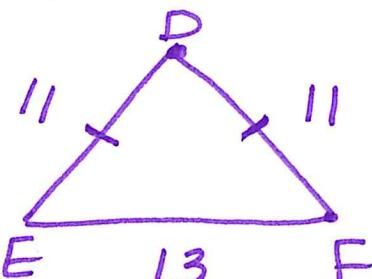
equilateral $\boxed{CA} = x + 10$

$$\begin{aligned} &= 6 + 10 \\ &= 16 \end{aligned}$$

- b.) $\triangle DEF$ is isosceles. $\angle D$ is the vertex angle, $\underline{\underline{DE}} = x + 7$, $\underline{\underline{DF}} = 3x - 1$, and $\underline{\underline{EF}} = 2x + 5$.

$$\begin{aligned} x + 7 &= 3x - 1 \\ -x &\quad -x \\ 7 &= 2x - 1 \\ +1 &\quad +1 \\ \hline x &= 4 \end{aligned}$$

isosceles



$$\begin{aligned} DE &= 4 + 7 \\ &= 11 \\ EF &= 2(4) + 5 \\ &= 13 \end{aligned}$$

