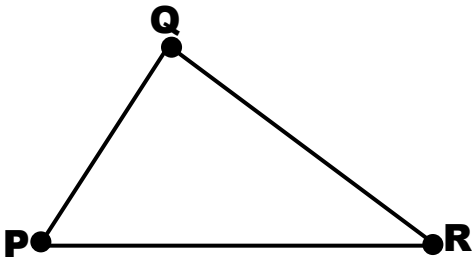
TOPIC 5-1: TRIANGLE BASICS

Welcome to Triangles! Let's open this unit with the Triangle Song!!

A triangle is made up of three components:

Vertices:



Sides:

Angles:

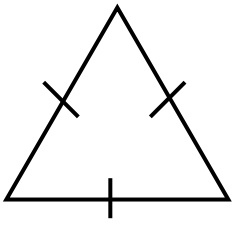
The **SUM** of a triangle's angles **ALWAYS** equals: _____°

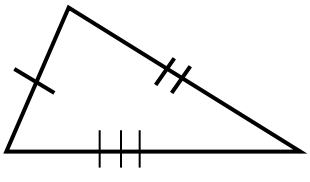
Watch this video that reviews triangle basics!!

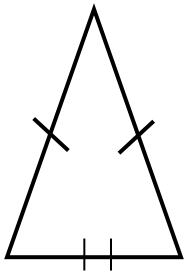
One way to classify triangles is by the ***length of its sides.***

EXAMPLE 1 **Classify each of the triangles by SIDES.**

a)_____ **b)**_____ **c)**_____





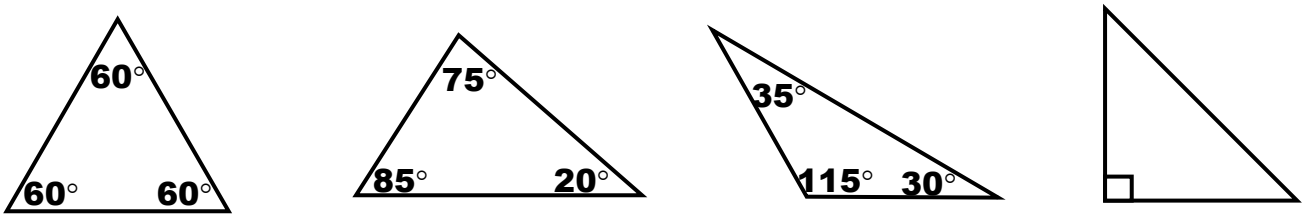


Triangles can also be classified by ***the measure of its <u>interior angles</u>.***

*(Remember: The sum of the measures of the interior angles of a triangle is **180°.**)*

<u>EXAMPLE 2</u> Classify the triangles by ANGLES.

a)_____ b)_____ c)_____ d)_____



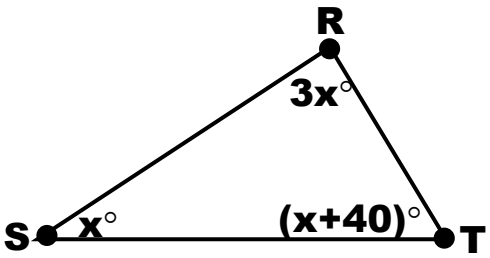
<u>EXAMPLE 3</u> Find the measure of the third angle of a triangle, if the first angle has a measure of 66° and the second angle measures 37°.

<u>EXAMPLE 4</u> Find the measure of each angle of ΔRST.

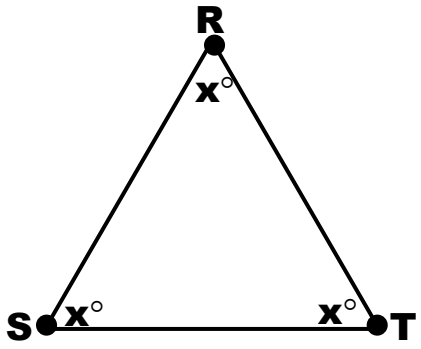
m∠R = _____

m∠S = _____

m∠T = _____



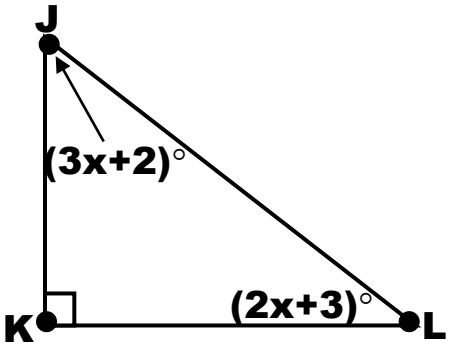
EXAMPLE 5 **Find the value of 'x'.**



x = _____

*The triangle in EXAMPLE 5 is an **equiangular** triangle.*
*Based on this example, we can say that each angle of an equiangular triangle is **60°.***

EXAMPLE 6 **Find the m<KJL.**



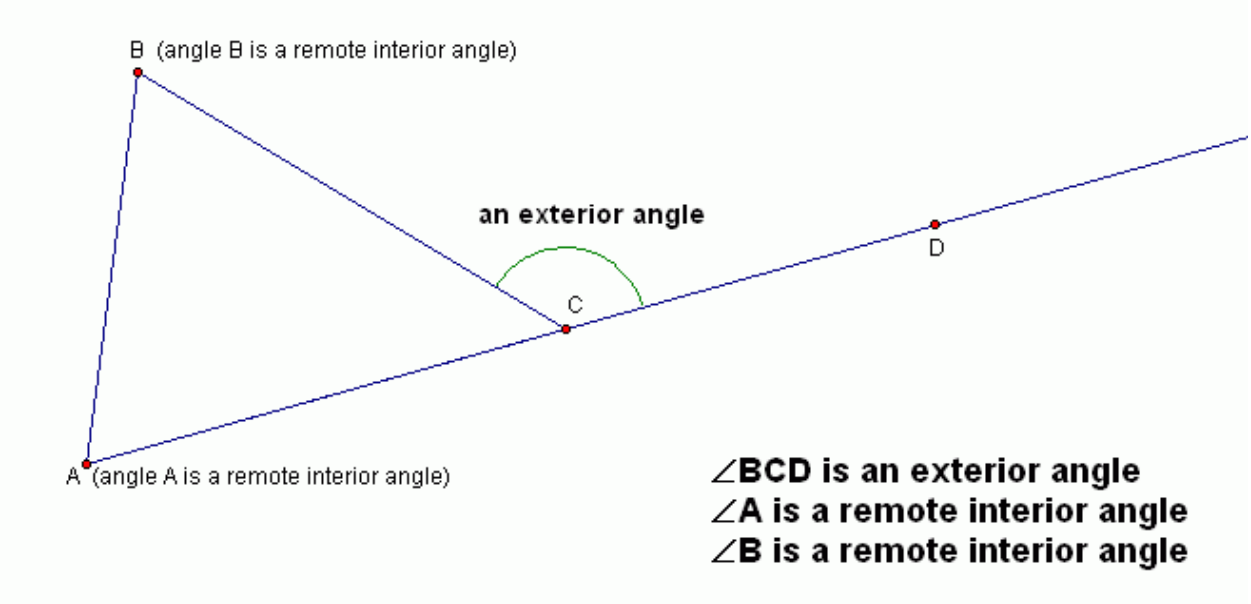
m∠KJL = _____

*∠J and ∠L in EXAMPLE 6 would be classified as **acute angles.***
*Since their sum is **90°,** we can say that…*

Acute Angles of a Right Triangle are Complementary.

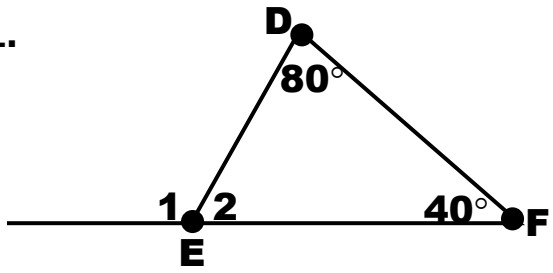
∠J + ∠L= _____ **x = _____** **m∠KJL = _____**

An ***exterior angle of a triangle*** is formed by one side of the triangle, and the extension of an adjacent side.



Exterior Angle Theorem: The measure of an exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles.

<u>EXAMPLE 1</u> Find the measure of ∠1.



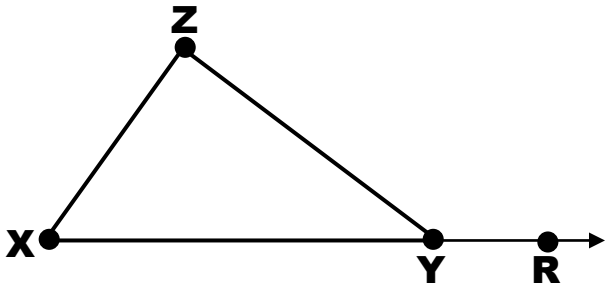
m∠1 = _____

Now go to the following website link for a few interactive demonstrations:

http://www.mathwarehouse.com/geometry/triangles/angles/remote-exterior-and-interior-angles-of-a-triangle.php

EXAMPLE 2

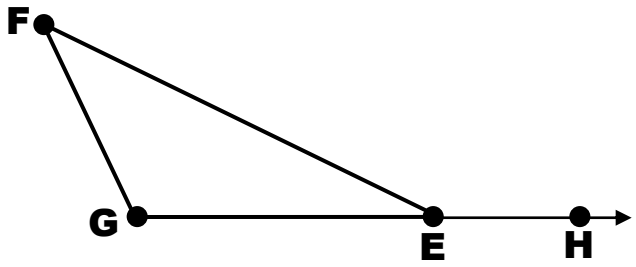
In ΔXYZ, m∠X = 63° and m∠Z = 64°, find m∠ZYR.



m∠ZYR = _____

EXAMPLE 3

In ΔEFG, m∠G = (11x – 2)°, m∠F = (8x + 4)°, and m∠FEH = (17x + 10)°. Find m∠F.



m∠F = _____