

5-12-17

Aim: SWBAT classify triangles and investigate the relationship between their sides and angles.

Do Now: Correct hw

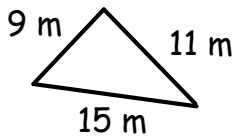
HW: Worksheet (highlighted problems)

Homework - Classifying Triangles

ANSWER KEY

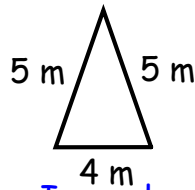
Name each triangle according to the length of its sides.

1)



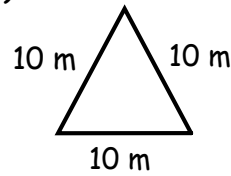
Scalene

2)



Isosceles

3)



Equilateral

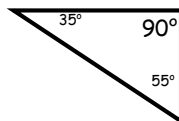
Name each triangle according to the measure of its angles.

4)



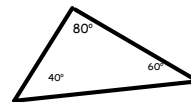
Obtuse

5)



Right

6)

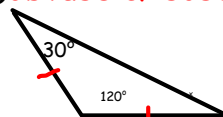


Acute

Find the measure of the third angle in each triangle

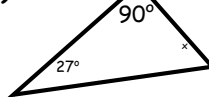
ALGEBRAICALLY! Classify each triangle by its sides and angles.

7) **obtuse & isosceles**



$$\begin{aligned} 30 + 120 + x &= 180 \\ 150 + x &= 180 \\ -150 & \quad -150 \\ \hline x &= 30^\circ \end{aligned}$$

8) **right & scalene**



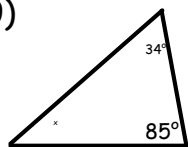
$$\begin{aligned} 27 + 90 + x &= 180 \\ 117 + x &= 180 \\ -117 & \quad -117 \\ \hline x &= 63^\circ \end{aligned}$$

9) **acute & isosceles**



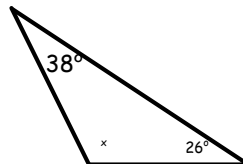
$$\begin{aligned} 40 + 70 + x &= 180 \\ 110 + x &= 180 \\ -110 & \quad -110 \\ \hline x &= 70^\circ \end{aligned}$$

10)



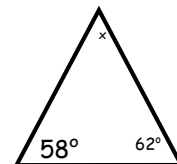
$$\begin{aligned} x + 34 + 85 &= 180 \\ x + 119 &= 180 \\ -119 & \quad -119 \\ \hline x &= 61^\circ \\ \text{acute \& scalene} \end{aligned}$$

11)



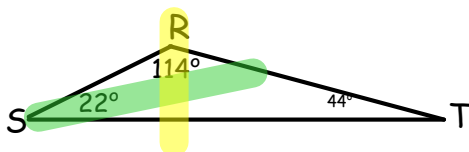
$$\begin{aligned} x + 38 + 26 &= 180 \\ x + 64 &= 180 \\ -64 & \quad -64 \\ \hline x &= 116^\circ \\ \text{obtuse \& scalene} \end{aligned}$$

12)



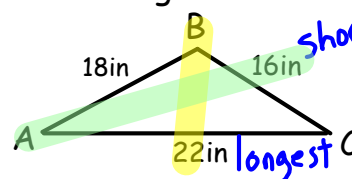
$$\begin{aligned} 58 + 62 + x &= 180 \\ 120 + x &= 180 \\ -120 & \quad -120 \\ \hline x &= 60^\circ \\ \text{acute \& scalene} \end{aligned}$$

13) Name the shortest and longest sides of the triangle.



shortest RT
longest ST

14) Name the largest and smallest angles of the triangle



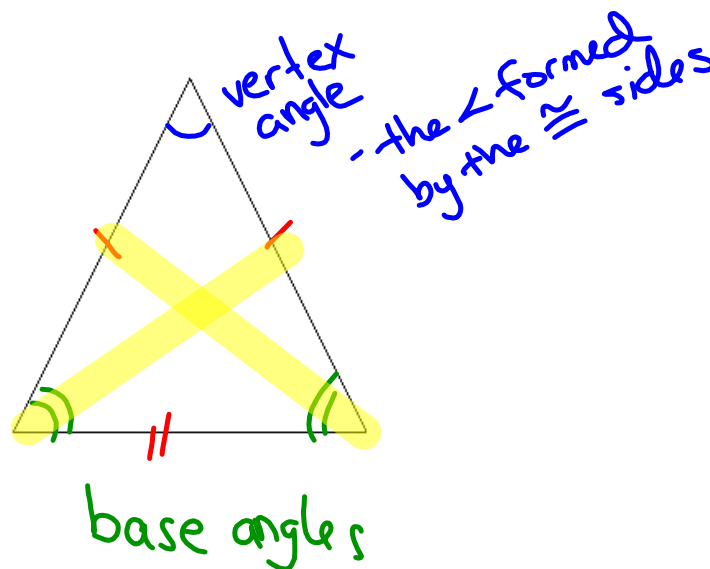
largest <B or <ABC
smallest <A or <BAC

IMPORTANT FACTS

- The side opposite the largest \angle is the longest side.
- The side opposite the smallest \angle is the shortest side.
- The \angle opposite the longest side is the largest \angle .
- The \angle opposite the shortest side is the smallest \angle .

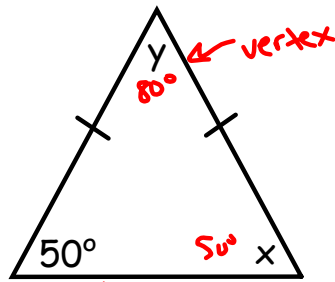
Notes on Isosceles Triangles:

- 2 sides are congruent
- Therefore, 2 \angle 's are congruent called the base \angle 's.
- The angles opposite the congruent sides are also congruent.
- The third remaining angle is called the vertex angle.



Classwork - Classifying Triangles

Use the following diagram to answer questions 1-4.



1) Find the $m\angle x$.

50°

$$y + 50 + 50 = 180$$

2) Find the $m\angle y$.

80°

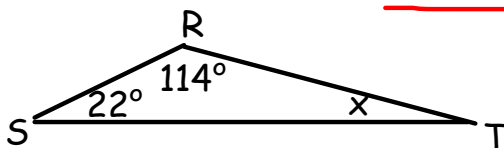
3) Classify the triangle by its sides.

(scalene, isosceles or equilateral)

4) Classify the triangle by its angles.

(acute obtuse or right)

5) Solve for the missing angle ALGEBRAICALLY.

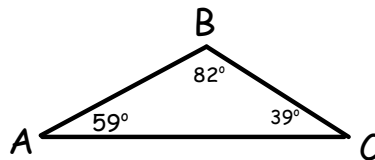


$$\begin{aligned} x + 22 + 114 &= 180 \\ x + 136 &= 180 \\ - 136 &- 136 \\ \hline x &= 44 \end{aligned}$$

6) Name the shortest and longest sides of the triangle.

shortest - _____

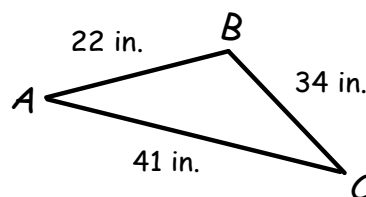
longest - _____



7) Name the smallest and largest angles of the triangle.

smallest - _____

largest - _____



Name: _____ Date: _____

AIM: SWBAT set-up and solve an equation to find the missing angle in a triangle.**DO NOW - Use your notes!**Given the following measurements classify each triangle by its **SIDES**.

1) 3 cm, 3 cm, 3 cm

2) 7 m, 5 m, 8 m

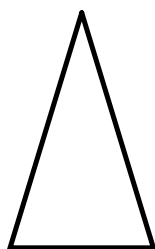
3) 6 in, 2 in, 6 in

Given the following measurements classify each triangle by its **ANGLES**.4) 30° , 60° , 90° 5) 42° , 86° , ~~52°~~ 6) 110° , 50° , 20°

CLASSWORK:

For each question you need to:

- Define a variable (write a let statement)
- Set up an algebraic equation
- Solve the equation
- Write your final answer in a sentence

1) In $\triangle ABC$, $m\angle A$ is 36° and $m\angle B$ is 47° . What is the measure of $\angle C$?2) $\triangle MST$ is an isosceles triangle. A base angle measures 50° . What is the measure of the vertex angle?

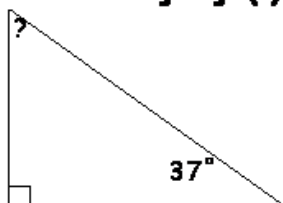
3) The measure of the vertex angle of an isosceles triangle is 102° . What is the measure of each of its base angles?

4) $\triangle PQR$ is a right triangle. One acute angle of the right triangle measures 55° . What is the measure of the other angle? (Hint - Draw a picture)

5) In $\triangle WXY$ the $m\angle W$ is 27° , $m\angle X$ is 111° , find the $m\angle Y$.

Solve for the missing angle(s).

6)



7)

