

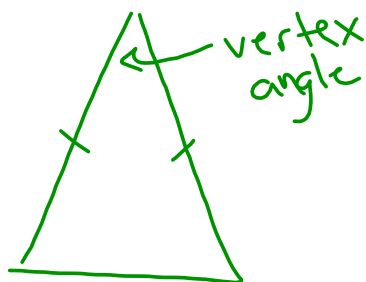
5-7-18

Aim: SWBAT find the missing angle measure(s) algebraically.

Do Now: How do you identify the vertex angle of an isosceles triangle? The angle where the two congruent sides meet.

HW: Worksheet

Quiz Friday (Triangles and Quadrilaterals)

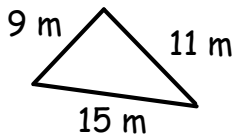


Homework - Classifying Triangles

ANSWER KEY

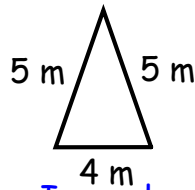
Name each triangle according to the length of its sides.

1)



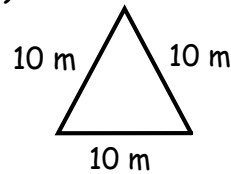
Scalene

2)



Isosceles

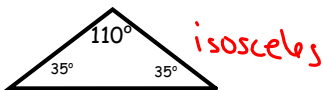
3)



Equilateral

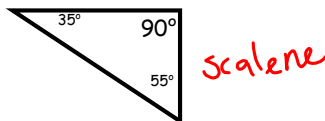
Name each triangle according to the measure of its angles.

4)



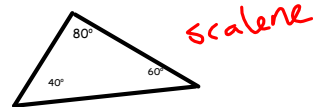
Obtuse

5)



Right

6)

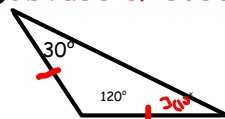


Acute

Find the measure of the third angle in each triangle

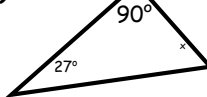
**ALGEBRAICALLY!** Classify each triangle by its sides and angles.

7) *obtuse & isosceles*



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

8) *right & scalene*



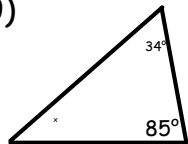
$$\begin{aligned} 27 + 90 + x &= 180 \\ 117 + x &= 180 \\ \underline{-117} \quad \underline{-117} & \\ x &= 63^\circ \end{aligned}$$

9) *acute & isosceles*



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

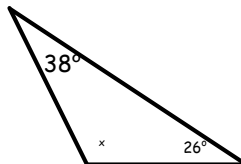
10)



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

*acute & scalene*

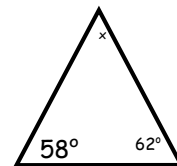
11)



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

*obtuse & scalene*

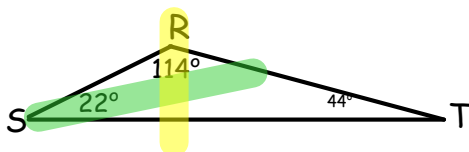
12)



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

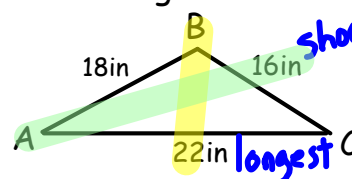
*acute & scalene*

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

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

EquilateralScaleneIsoscelesGiven the following measurements classify each triangle by its **ANGLES**.4)  $30^\circ$ ,  $60^\circ$ ,  $90^\circ$ 5)  $42^\circ$ ,  $86^\circ$ ,  $52^\circ$ 6)  $110^\circ$ ,  $50^\circ$ ,  $20^\circ$ RightAcuteObtuse**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

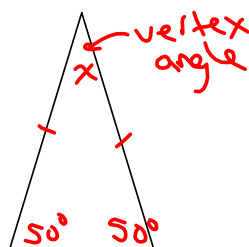
1) In  $\triangle ABC$ ,  $m\angle A$  is  $36^\circ$  and  $m\angle B$  is  $47^\circ$ . What is the measure of  $\angle C$ ?let  $x =$  the measure of  $\angle C$ 

$$x + 36 + 47 = 180$$

$$x + 83 = 180$$

$$\begin{array}{r} x + 83 = 180 \\ -83 \quad -83 \\ \hline \end{array}$$

$$x = 97$$

The measure of  $\angle C$  is  $97^\circ$ .2)  $\triangle MST$  is an isosceles triangle. A base angle measures  $50^\circ$ . What is the measure of the vertex angle?let  $x =$  the measure of the vertex angle

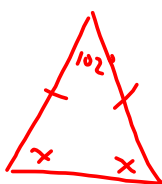
$$x + 50 + 50 = 180$$

$$\begin{array}{r} x + 100 = 180 \\ -100 \quad -100 \\ \hline \end{array}$$

$$x = 80$$

The measure of the vertex angle is  $80^\circ$ .

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

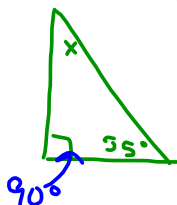


let  $x$  = the measure of each base angle

$$\begin{aligned} x+x+102 &= 180 \\ 2x+102 &= 180 \\ -102 & -102 \\ \hline 2x &= 78 \\ \frac{2x}{2} &= \frac{78}{2} \\ x &= 39 \end{aligned}$$

Each base angle measures  $39^\circ$ .

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



let  $x$  = the other acute angle

$$\begin{aligned} x+90+55 &= 180 \\ x+145 &= 180 \\ -145 & -145 \\ \hline x &= 35 \end{aligned}$$

The other acute angle is  $35^\circ$ .

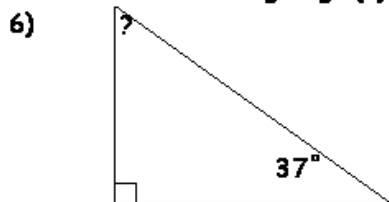
\*5) In  $\triangle WXY$  the  $m\angle W$  is  $27^\circ$ ,  $m\angle X$  is  $111^\circ$ , find the  $m\angle Y$ .

let  $x = m\angle Y$

$$\begin{aligned} x+27+111 &= 180 \\ x+138 &= 180 \\ -138 & -138 \\ \hline x &= 42 \end{aligned}$$

The  $m\angle Y$  is  $42^\circ$ .

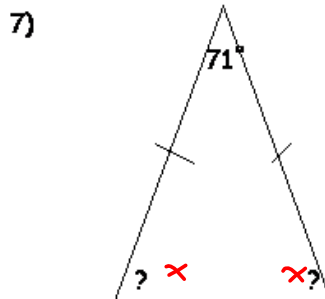
Solve for the missing angle(s).



let  $x$  = the measure of the missing angle

$$\begin{aligned} x+37+90 &= 180 \\ x+127 &= 180 \\ -127 & -127 \\ \hline x &= 53 \end{aligned}$$

The missing measure is  $53^\circ$ .



let  $x$  = the measure of each base angle

$$\begin{aligned} x+x+71 &= 180 \\ 2x+71 &= 180 \\ -71 & -71 \\ \hline 2x &= 109 \\ \frac{2x}{2} &= \frac{109}{2} \\ x &= 54.5 \end{aligned}$$

Each base angle measures  $54.5^\circ$ .

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Homework - Isosceles Triangles

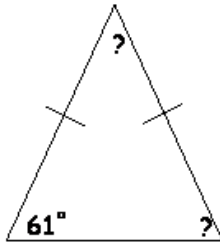
For each question you need to:

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

1) In  $\triangle ABC$  the  $m\angle A$  is  $87^\circ$ ,  $m\angle B$  is  $68^\circ$ , find the  $m\angle C$ .2)  $\triangle XYZ$  is an isosceles triangle. A base angle is  $70^\circ$  find the measure of the vertex angle.3)  $\triangle QRS$  is an isosceles triangle. The vertex angle is  $88^\circ$  find the measure of each base angle.4)  $\triangle RST$  is a right triangle. One of its angles is  $48^\circ$  find the measure of the missing angle.

Solve for the missing angle(s).

5)



6)

