

5-15-17

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

Do Now: How do you identify the vertex angle of an isosceles triangle?

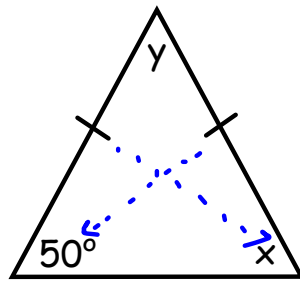
HW: Worksheet

Quiz Wednesday (Triangles and Quadrilaterals)

Final Review Packet due June 2nd

Classwork - Classifying Triangles

Use the following diagram to answer questions 1-4.



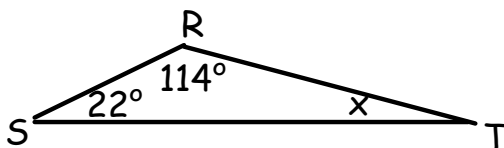
1) Find the  $m\angle x$ . 50°

2) Find the  $m\angle y$ . 80°

3) Classify the triangle by its sides. isosceles  
(scalene, isosceles or equilateral)

4) Classify the triangle by its angles. acute  
(acute, obtuse or right)

5) Solve for the missing angle **ALGEBRAICALLY**.

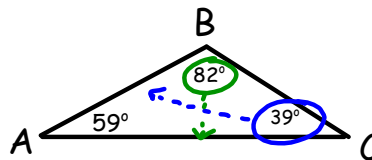


$$\begin{aligned} x + 114 + 22 &= 180 \\ x + 136 &= 180 \\ -136 &-136 \\ \hline x &= 44 \end{aligned}$$

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

shortest - AB

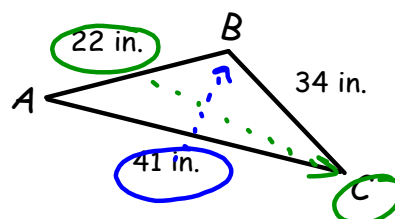
longest - AC



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

smallest - ∠C

largest - ∠B



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

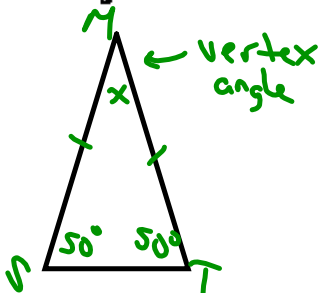
1) In  $\triangle ABC$ ,  $m\angle A$  is  $36^\circ$  and  $m\angle B$  is  $47^\circ$ . What is the measure of  $\angle C$ ?Let  $x =$  the measure of  $\angle C$ 

$$x + 36 + 47 = 180$$

$$x + 83 = 180$$

$$- 83 \quad - 83$$

$$x = 97$$

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

$$x + 50 + 50 = 180$$

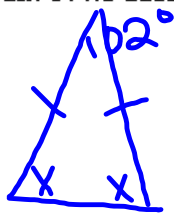
$$x + 100 = 180$$

$$- 100 \quad - 100$$

$$x = 80$$

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  $x = \text{each base } \angle$



$$x + x + 102 = 180$$

$$2x + 102 = 180$$

$$\begin{array}{r} -102 \\ -102 \\ \hline 2x = 78 \end{array}$$

$$\frac{2x}{2} = \frac{78}{2}$$

$$x = 39^\circ$$

Each base  $\angle$  is  $39^\circ$ .

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  $x = \text{measure of other } \angle$

$$x + 90 + 55 = 180$$

$$x + 145 = 180$$

$$\begin{array}{r} -145 \\ -145 \\ \hline x = 35 \end{array}$$

$$x = 35^\circ$$

The other 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  $y = m\angle Y$

$$y + 27 + 111 = 180$$

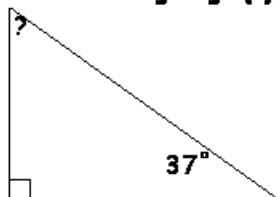
$$y + 138 = 180$$

$$\begin{array}{r} -138 \\ -138 \\ \hline y = 42 \end{array}$$

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

Solve for the missing angle(s).

6)



let  $x = m\angle$ ?

$$37 + 90 + x = 180$$

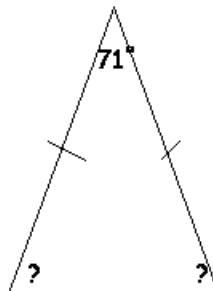
$$127 + x = 180$$

$$\begin{array}{r} -127 \\ -127 \\ \hline x = 53 \end{array}$$

$$x = 53^\circ$$

The missing  $\angle$  is  $53^\circ$ .

7)



let  $x = \text{base } \angle$ 's

$$x + x + 71 = 180$$

$$2x + 71 = 180$$

$$\begin{array}{r} -71 \\ -71 \\ \hline 2x = 109 \end{array}$$

$$\frac{2x}{2} = \frac{109}{2}$$

$$x = 54.5^\circ$$

Each base  $\angle$  is  $54.5^\circ$ .

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

## Homework - Isosceles Triangles

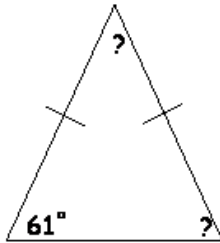
For each question you need to:

- 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)

