

5-16-17

Aim: SWBAT classify quadrilaterals and find their missing angle measures algebraically.

Do Now: Check hw with key

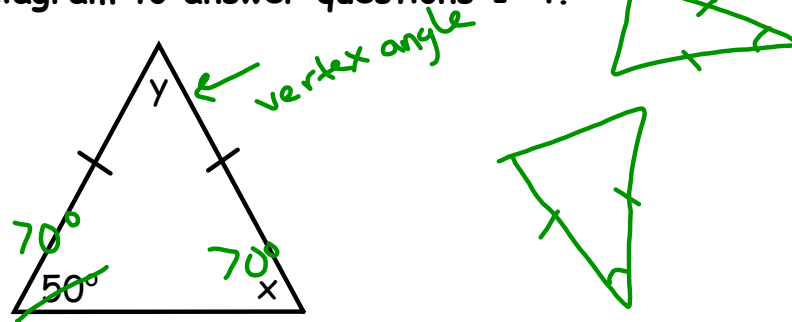
HW: Pg. 418 # 9 - 14, 17 - 18, 25

Quiz tomorrow (Triangles and Quadrilaterals)

Final review Packet due June 2nd

Classwork - Classifying Triangles

Use the following diagram to answer questions 1-4.



1) Find the $m\angle x$. 70°

$$70 + 70 + x = 180$$

$$140 + x = 180$$

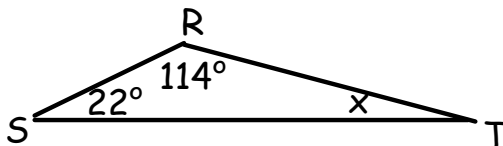
$$x = 40$$

2) Find the $m\angle y$. 40°

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**.



$$114 + 22 + x = 180$$

$$x + 136 = 180$$

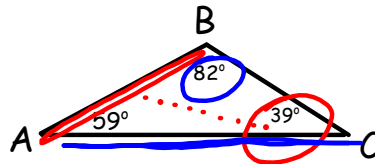
$$-136 \quad -136$$

$$x = 44$$

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

shortest - AB

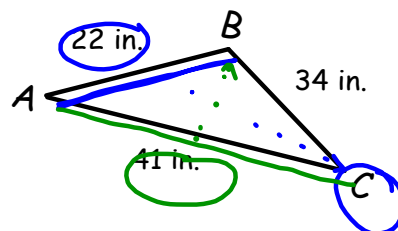
longest - AC



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

smallest - ∠C

largest - ∠B



Name: Answer Key

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° , $m\angle B$ is 68° , find the $m\angle C$.let $x = m\angle C$

$$87 + 68 + x = 180^\circ$$

$$155 + x = 180$$

$$\begin{array}{r} 155 + x = 180 \\ -155 \quad -155 \\ \hline x = 25^\circ \end{array}$$

$$\boxed{x = 25^\circ}$$

The $m\angle C$ is 25° .2) $\triangle XYZ$ is an isosceles triangle. A base angle is 70° find the measure of the vertex angle.let $x = \text{vertex } \angle$

$$x + 70 + 70 = 180$$

$$x + 140 = 180$$

$$\begin{array}{r} x + 140 = 180 \\ -140 \quad -140 \\ \hline x = 40^\circ \end{array}$$

$$\boxed{x = 40^\circ}$$

The vertex \angle is 40° .3) $\triangle QRS$ is an isosceles triangle. The vertex angle is 88° find the measure of the base angle.let $x = \text{each base } \angle$

$$x + x + 88 = 180$$

$$2x + 88 = 180$$

$$\begin{array}{r} 2x + 88 = 180 \\ -88 \quad -88 \\ \hline 2x = 92 \end{array}$$

$$\frac{2x}{2} = \frac{92}{2}$$

$$x = 46^\circ$$

Each base \angle is 46° .4) $\triangle RST$ is a RIGHT triangle. One of its angles is 48° find the measure of the missing angle.let $x = \text{other acute } \angle$

$$x + 48 + 90 = 180$$

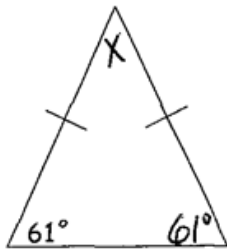
$$x + 138 = 180$$

$$\begin{array}{r} x + 138 = 180 \\ -138 \quad -138 \\ \hline x = 42^\circ \end{array}$$

$$\boxed{x = 42^\circ}$$

The other acute \angle is 42° .

5)

let $x = \text{vertex } \angle$

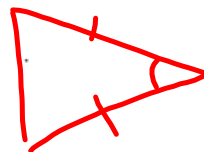
$$x + 61 + 61 = 180$$

$$x + 122 = 180$$

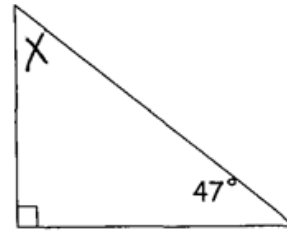
$$\begin{array}{r} -122 \quad -122 \\ \hline \end{array}$$

$$\boxed{x = 58^\circ}$$

The vertex \angle is 58° .



6)

let $x = \text{other acute } \angle$

$$x + 47 + 90 = 180$$

$$x + 137 = 180$$

$$\begin{array}{r} -137 \quad -137 \\ \hline \end{array}$$

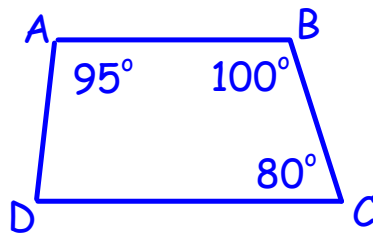
$$\boxed{x = 43^\circ}$$

The other acute \angle is 43° .

To find the missing angle measure of any quadrilateral (4-sided shape), add up all the sides and set it equal to 360° .

Quadrilaterals : 360° total

In Quadrilateral ABCD, the measure of $\angle A$ is 95° , the measure of $\angle B$ is 100° , and the measure of $\angle C$ is 80° . Find the measure of $\angle D$.



Arithmetic

$$95^\circ + 100^\circ + 80^\circ = 275^\circ$$

$$360^\circ - 275^\circ = \boxed{85^\circ}$$

Algebraic

$$\text{let } x = m\angle D$$

$$x + 95 + 100 + 80 = 360$$

$$x + 275 = 360$$

$$\begin{array}{r} x + 275 = 360 \\ - 275 \quad - 275 \\ \hline x = 85 \end{array}$$

The $m\angle D$ is 85° .