Classwork 23

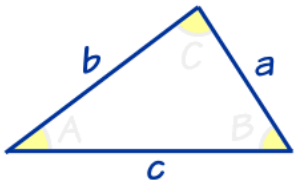
APRIL 19, 2020

We have discussed **congruent** objects. Two objects are **congruent** if ……..

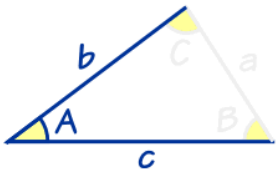
Two triangles are congruent if
they have **same sides and same angles**.

Congruent Triangles Rules : (≅ *Congruent symbol)*

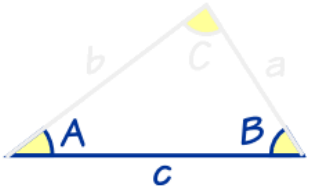
1. **3 Sides are equal (SSS)**



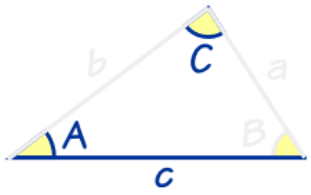
2. **Side Angle Side are equal (SAS)**



3. **Angle Side Angle are equal (ASA)**

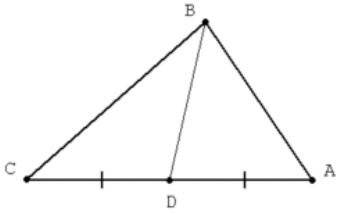


4. **Angle Angle Side are equal (AAS)**



Median (middle) **definition**

A **median** of a triangle is a **line segment** joining a vertex to the midpoint of the opposing side.



a

Area $= a \cdot b\ (cm \cdot cm)$

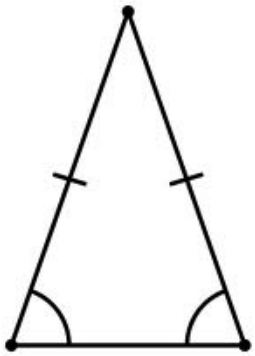
b

Classwork 23 Continued …..

Proof that in an isosceles triangle a distance from any point on the median to the base vertexes is the same.

1. Draw an isosceles triangle.

Note: the properties of the isosceles triangle are marked. **Sides** are **equal, base angles** are e**qual**.

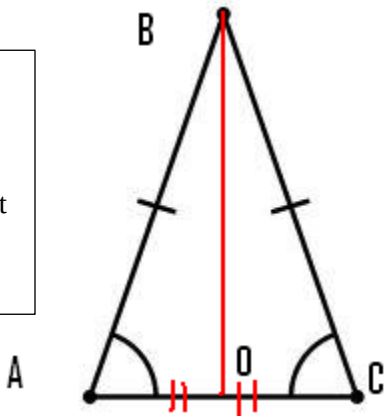


2. Draw a median in an isosceles triangle

Note: the properties of the median are marked.

$\Delta ABO \cong \Delta CBO$ **by SAS** $\Rightarrow \angle AOB = \angle BOC$

As a matter of fact $\angle AOB$ *and* $\angle BOC$ are straight angles, but we didn't prove it yet.

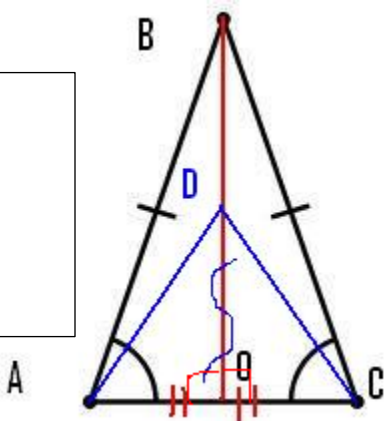


3. Draw a point D on the median and connected with **A** and **C**.

$DO = DO$, $AO = CO$, $\angle AOB = \angle BOC$ $\Rightarrow$

$\Delta ADO \cong \Delta CDO$ **by SAS**

$\Rightarrow AD = CD$



MATH 4: HOMEWORK 23
APRIL 19, 2020

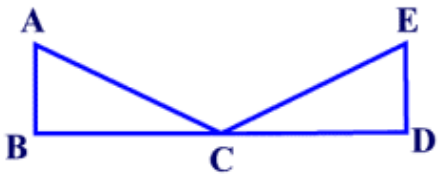
Use symbols: ∠, *Δ, =>, ≅, etc. wherever possible.*

1. Proof:

Given: ∠ *ABC* = ∠ *CDE*= 90°; *AB = ED;*

C is the midpoint of BD

Proof that: Δ ABC≅ Δ EDC.

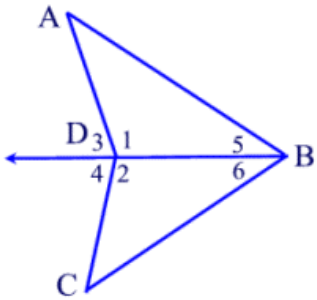


My proof:

2. Proof:

Given: ∠ *1* = ∠ *2; AD = CD;*

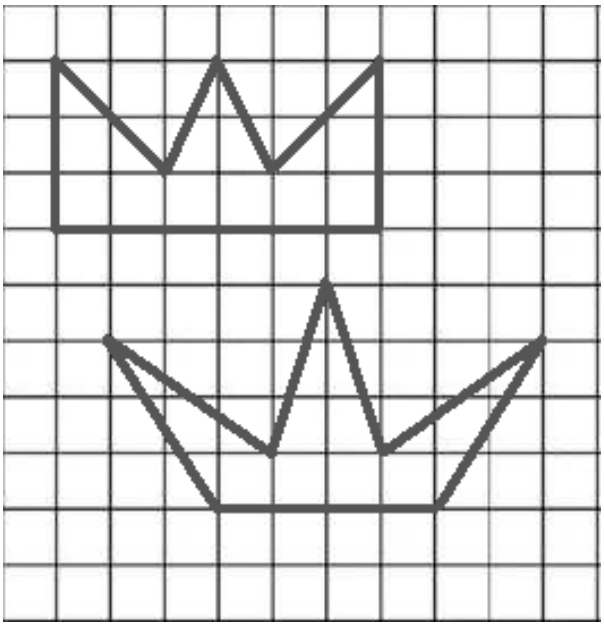
Proof that: ∠ *5* = ∠ *6;*



My proof:

3. You can use color pencils for calculation.

Find the area of two crowns to the right in squares.



4. You can use color pencils for calculation.

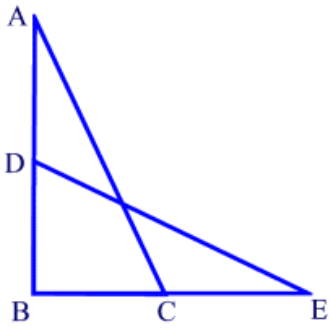
The square to the right was divided into small squares. Find:

a. the area of shaded region
b. the area of unshaded region
c. the ratio: $\frac{area\ of\ the\ shaded\ region}{area\ of\ the\ unshaded\ region}$

5. ** Proof:

Given: $\angle A = \angle E$; $AB = BE$;

Proof that: AD = EC;



My proof: