

# Classwork 17

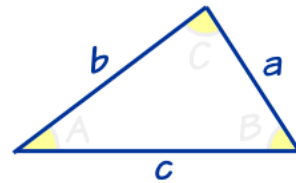
MARCH, 4 2018

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

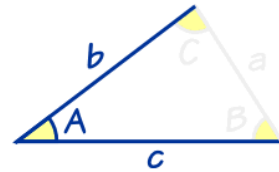
Two triangles are congruent if they have same sides and same angles.

Congruent Triangles Rules : (  $\cong$  Congruent symbol)

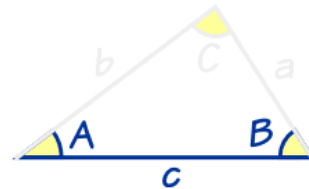
1. 3 Sides are equal (SSS)



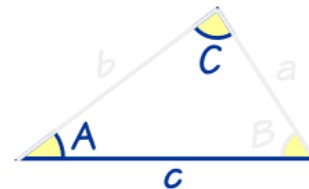
2. Side Angle Side are equal (SAS)



3. Angle Side Angle are equal (ASA)

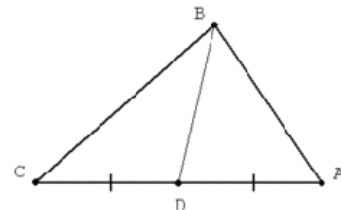


4. Angle Angle Side are equal (AAS)



Median (middle) definition

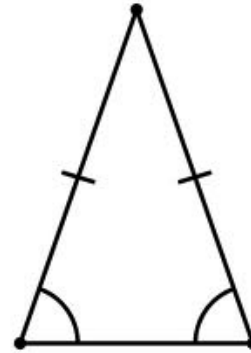
A **median** of a triangle is a **line segment** joining a vertex to the midpoint of the opposing side.



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

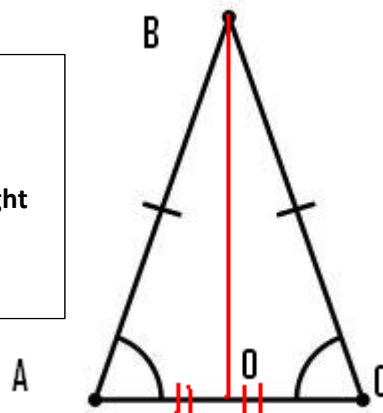
1. Draw an isosceles triangle.

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



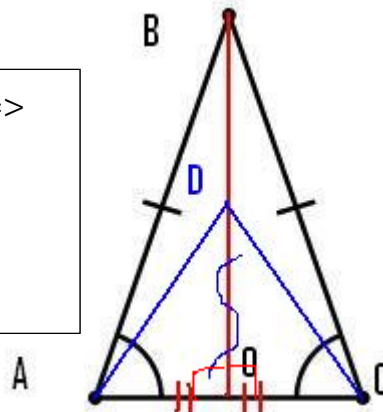
2. Draw a median in an isosceles triangle

**Note:** the properties of the median are marked.  
 $\triangle ABO \cong \triangle CBO$  by SAS =>  
 $\angle AOB = \angle BOC = 90^\circ$ , because  $\angle AOB$  is straight



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

$DO = DO, \quad AO = CO, \quad \angle AOB = \angle BOC = 90^\circ \Rightarrow$   
 $\triangle ADO \cong \triangle CDO$  by SAS  
 $\Rightarrow AD = CD$



**HOMEWORK 17**  
**MARCH 4, 2018**

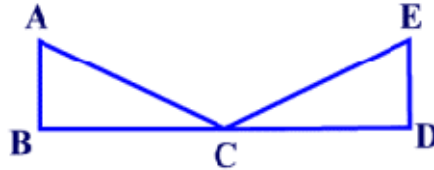
Use symbols:  $\angle$ ,  $\Delta$ ,  $\Rightarrow$ ,  $\cong$ , etc. wherever possible.

1. Proof:

**Given:**  $\angle ABC = \angle CDE = 90^\circ$ ;  
 $AB = ED$ ;

*C is the midpoint of BD*

**Proof that:**  $\Delta ABC \cong \Delta EDC$ .

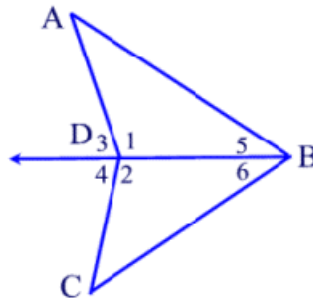


My proof:

2. Proof:

**Given:**  $\angle 1 = \angle 2$ ;  $AD = CD$ ;

**Proof that:**  $\angle 5 = \angle 6$ ;

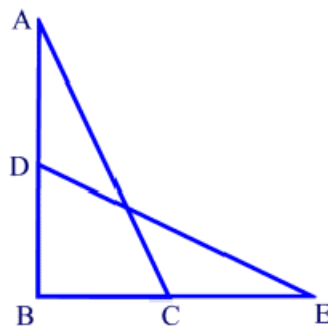


My proof:

3. Proof:

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

**Proof that:**  $AD = EC$ ;



My proof: