



# Median, bisector and the height of the triangle

# Goals lesson

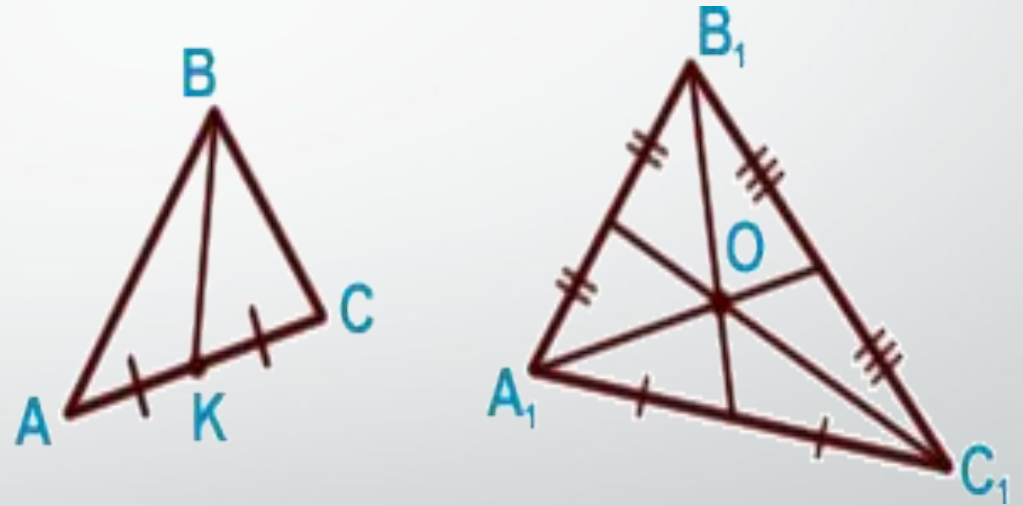
- Education: Introduction of new concepts heights, medians and bisectors of a triangle.
- Educational: to educate the ability to listen and hear.
- Developing: Develop a stable cognitive interest in the study of geometry

# Plan lesson

- 1) Greeting (2min)
- 2) Organizing time (3min)
- 3) To explain the new material (15min)
- 4) Work together with the teacher (15min)
- 5) Reflection (5min)
- 6) Give homework (2min)
- 7) Summarizing time (3min)

- The median of the triangle - the segment connecting the top with the middle of the triangle opposite side.  
In any triangle, you can spend 3 median. All of them intersect at a single point, the center (center of gravity) of the triangle.

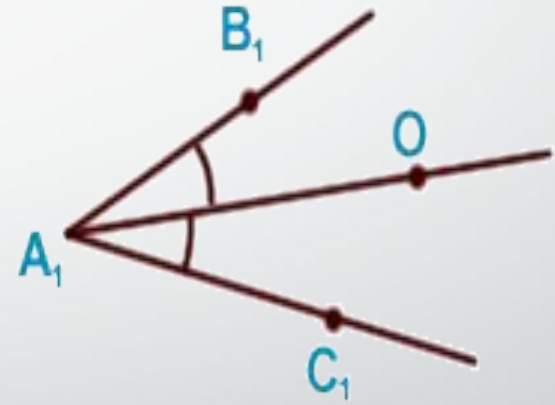
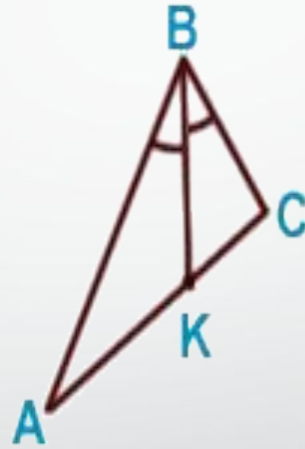
- $AK = KC$  ,  
 $BK$  - median  $\triangle ABC$  ,  
 $O$  - center  $\triangle A_1 B_1 C_1$  .



- The properties of the medians of a triangle

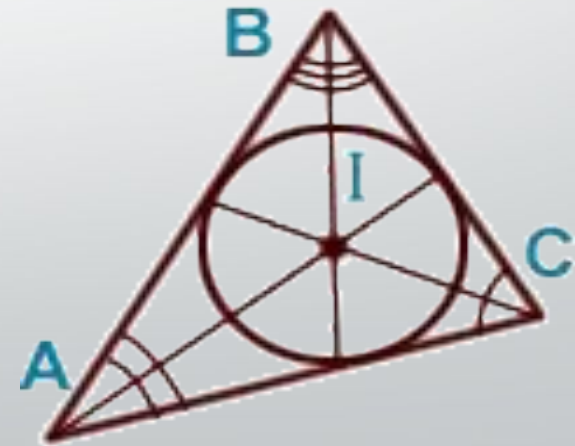
1. The median divides the triangle into two triangles of equal area.
2. The medians of a triangle intersect at one point, which divides each of them in the ratio of 2:1, starting from the top. This point is called the center of gravity of the triangle.
3. The whole triangle is divided into six their medians of equal triangles.

- The bisector of the triangle - the segment bisector angle of the triangle, connecting the apex of the triangle with the point on the opposite side. Please note that the bisector of the angle - a ray that divides the angle equal to two, and the bisector of the triangle - is cut, part of the beam, limited side of the triangle.
- $BK$  - bisector  $\triangle ABC$  ,  
 $A_1O$  - bisector  $\angle C_1A_1B_1$



- Each triangle can be carried out three bisectors that intersect at a single point, usually denoted Latin letter **I**.

The point of intersection of the bisectors of the triangle (**I**) - Center the in circle.

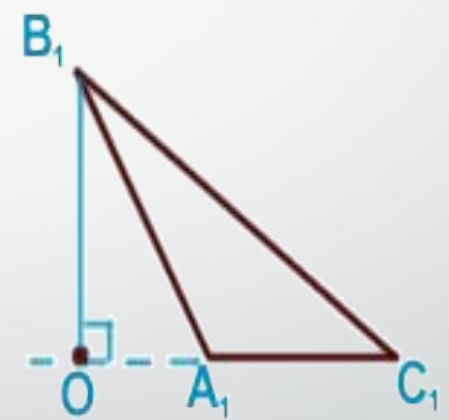


- Properties triangle bisectors

1. The bisector of angle - a locus of points equidistant from the sides of the angle.
2. Bisector internal angle of a triangle divides the opposite side into segments proportional adjacent sides:  $x / y = a / b$ .
3. The point of intersection of the bisectors of the triangle is the center of a circle inscribed in the triangle.



- The height of the triangle - the perpendicular drawn from the vertex triangle to the line containing the opposite side.



**For example:**

Two triangles are equal to the angle of  $58^\circ$  and  $72^\circ$ . Find an obtuse angle, which form a triangle of height, coming out of the tops of these angles. Answer give degrees.

From the triangle ACH (angle H - straight) find the angle CAH. He is  $18^\circ$ .

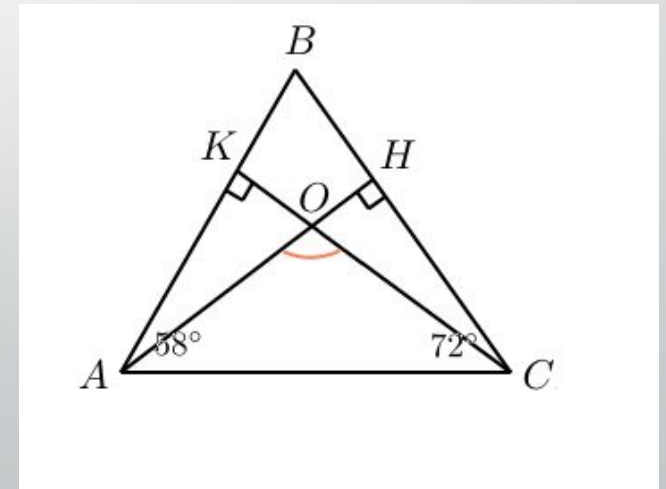
From the triangle ACK (K - line) find the angle ACK. He is  $32^\circ$ .

In a triangle AOC two angles are known. We find the third,

that is AOC, the angle which is obtuse angle between the height of the triangle ABC:

$$AOC = 180^\circ - 18^\circ - 32^\circ = 130^\circ$$

**Answer:**  $130^\circ$





**Classwork:** p78 №18,19,20,21

**Homework:** p78 №22,23,24