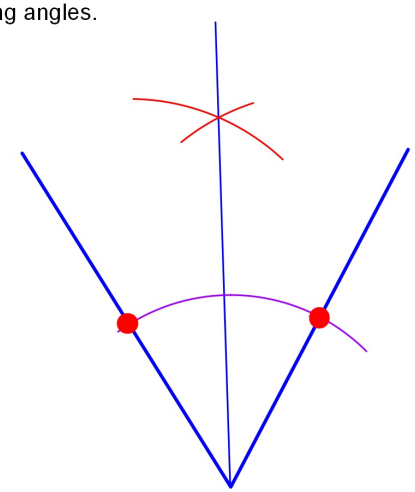
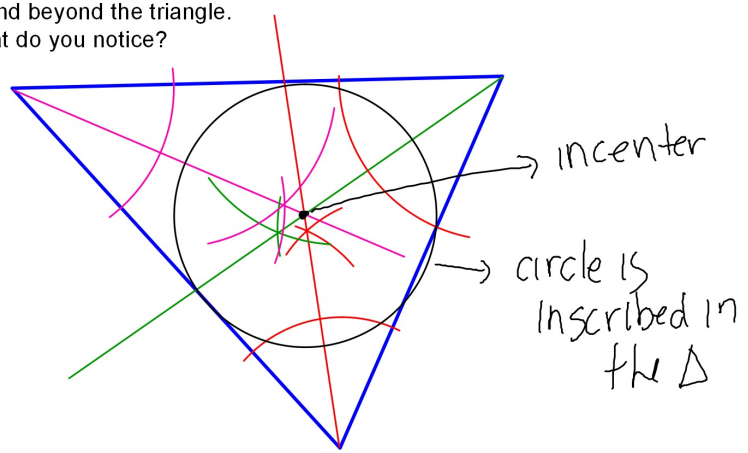
Bisecting angles.



Draw a large triangle on a piece of paper.
Bisect all three angles. Draw the angle bisector so that they extend beyond the triangle.
What do you notice?



The angle bisectors of any triangle are concurrent.

Concurrent
When three or more lines meet at the same point, they are concurrent.

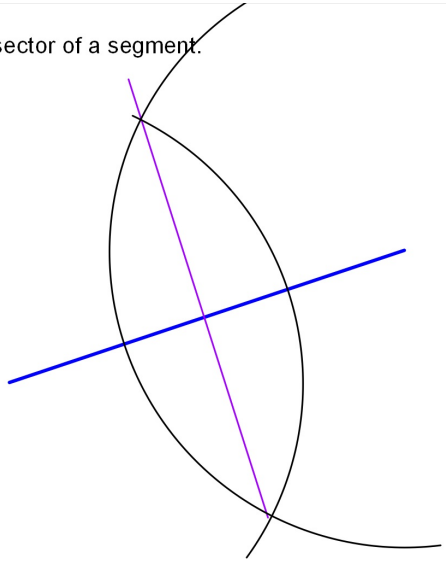
Theorem 5-7

The bisectors of the angles of a triangle are concurrent at a point equidistant from the sides.

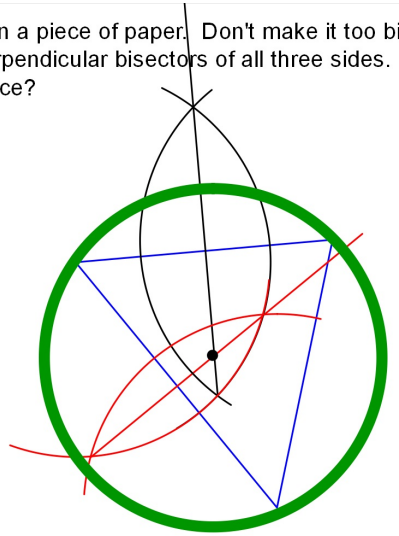
This point is the center of the circle that fits perfectly inside the triangle, called the "incenter"

The circle is said to be inscribed in the triangle.

Perpendicular bisector of a segment.



Draw a triangle on a piece of paper. Don't make it too big.
Construct the perpendicular bisectors of all three sides.
What do you notice?



Theorem 5-6

The perpendicular bisectors of the sides of a triangle are concurrent at a point equidistant from the vertices.

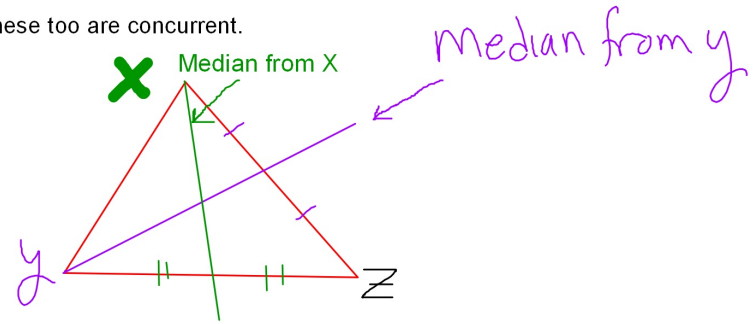
This point is the center of the circle that fits perfectly outside the triangle, and is called the "circumcenter"

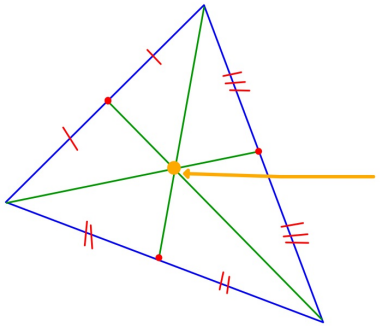
The circle is said to be circumscribed about the triangle.

Median of a triangle:

The segment that conects a vertex with the midpoint of the opposite side.

These too are concurrent.





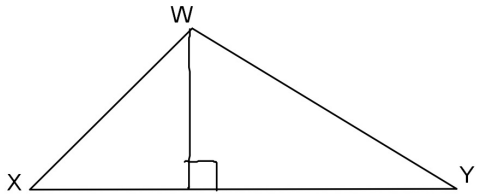
This point is called the CENTROID of the triangle.

Center of gravity.

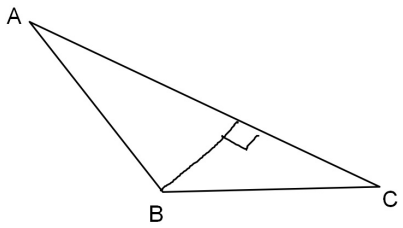
Altitude of a triangle: (height)

The perpendicular segment from a vertex to a line containing the opposite side.

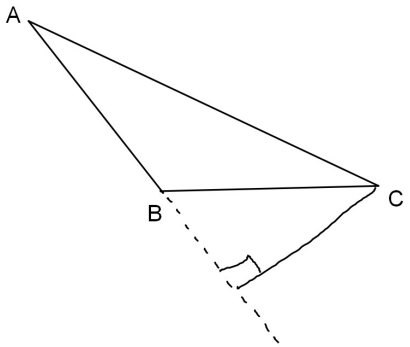
Draw the altitude from W.



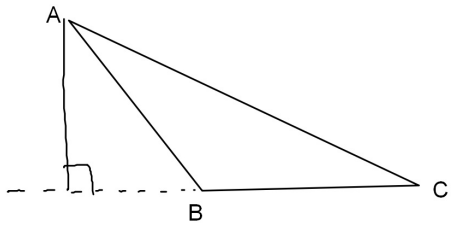
Draw the Altitude from B.



Draw the Altitude from C.



Draw the Altitude from A.



The Altitudes of a triangle are concurrent.

This point is called the Orthocenter.