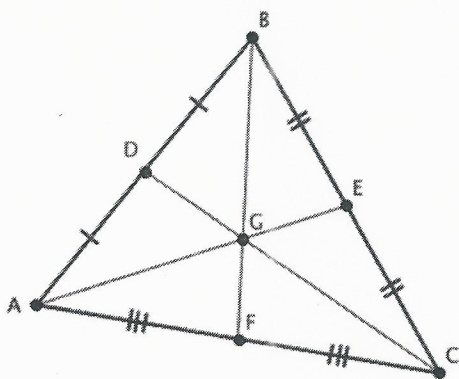
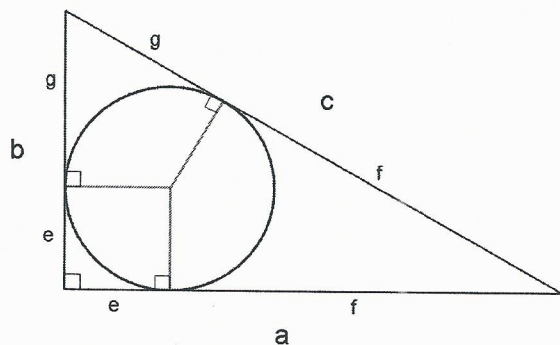


Centroid



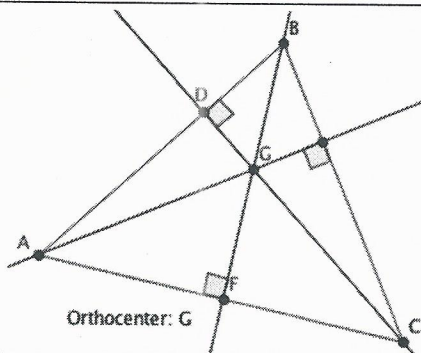
Centroid of a triangle is always located inside the triangle. It is also called the center of mass because the triangular structure acts as if its entire mass was concentrated at that point. That is why one can balance the triangle on a tip of a pencil when the pencil tip is supporting the triangle at the centroid.

In-center



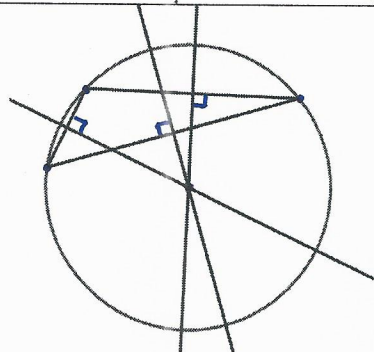
The incenter is the center of the inscribed circle which is the largest circle that can fit inside the triangle. The incenter is always inside the triangle. The sides of the triangle are tangent to the inscribed circle at the points of contact. Those points are called points of tangency. Two line segments tangent to a circle that are drawn from the same external point have the same length.

Orthocenter



As an altitude of a triangle can be outside of the triangle so can orthocenter. In fact if a triangle is obtuse the orthocenter will lie outside the triangle.

Circumcenter



This is the center of the circle circumscribed around the triangle. That is the smallest circle that contains the triangle entirely and passes through the vertices of the triangle.

In a particular case of a right triangle the circumcenter is the midpoint of the hypotenuse.

Euler Line

In any triangle, the **centroid**, **circumcenter** and **orthocenter** are always collinear that is they lie on the

same straight line, called Euler line in honor of the mathematician Leonhard Euler who discovered it.