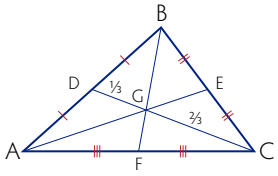
Triangle Centers

Triangle Centers

Centroid

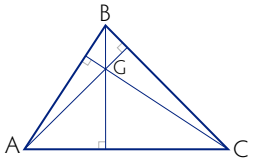
Intersection of the triangle's medians.



- A median connects a vertex with the midpoint of the opposite side.
- Divides the triangle into 2 triangles of equal areas.
- The centroid is located ⅔ of the way from the vertext to the side; that is, in the figure above:
  - CG = ⅔CD
  - GD = ⅓CD.
  - CG = 2GD

Orthocenter

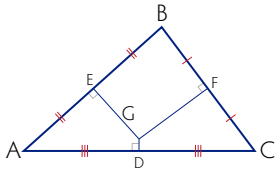
Intersection of a triangle's altitudes.



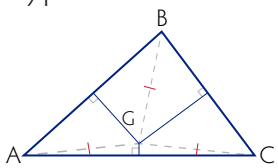
- In a right triangle, the orthocenter is the right-angle vertex.

Circumcenter

Intersection of a triangle's perpedicular bisectors.



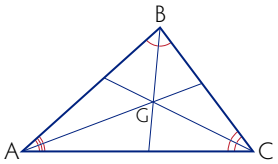
- The circumcenter will be located:
  - on the interior of an acute triangle
  - on the exterior of an obtuse triangle
  - On the midpoint of the hypotenuse of a right triangle



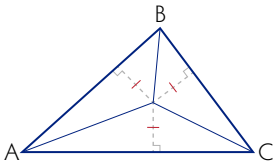
- Equidistant from the three vertices.

Incenter

Intersection of a triangle's angle bisectors.



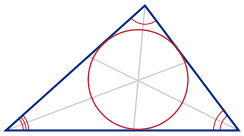
- Equidistant from the triangle's sides.



Triangle Circles

Incircle

- A circle tangent to a circle's sides.
- Its center is the triangle's incenter.



Circumcircle

- A circle that passes through the three vertices of a triangle
- Its center is the triangle's circumcenter.