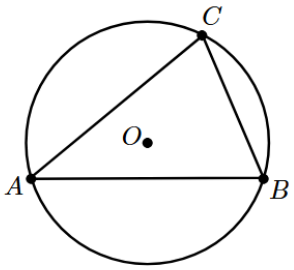
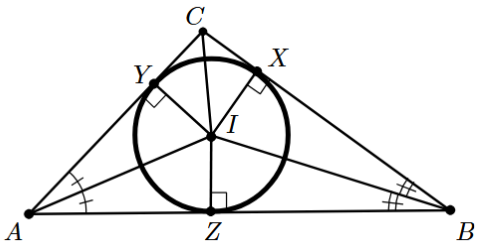
Circumscribed - A circle that contains all three vertices of a triangle. The radius of the circle is called the **circumradius.**

Circumcenter - The center of a circumscribed circle. It is the point that is the same distance to the three vertices of the triangle. The circumcenter may be in, on, or outside of the triangle. It is found by the three perpendicular bisectors of the triangle sides.

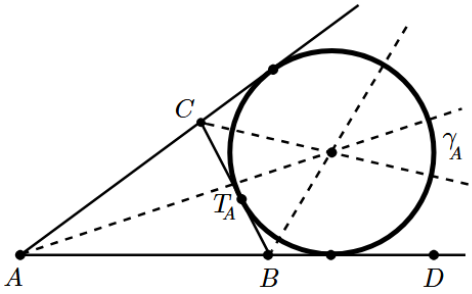


Inscribed - the largest circle that can be contained entirely within a triangle. It is tangent to the three sides of the triangle.

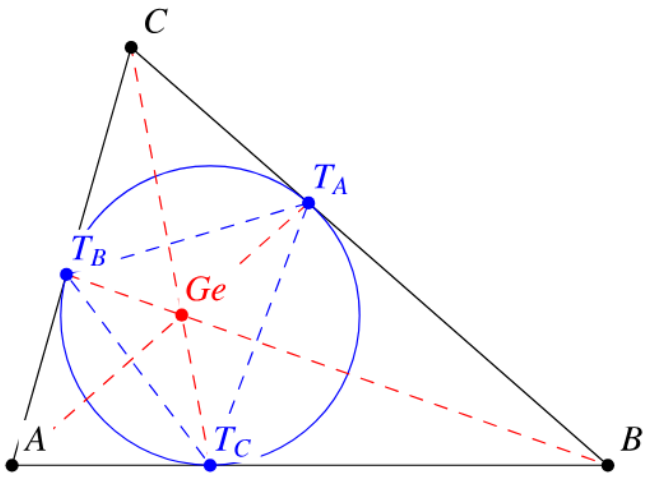
Incenter - the center of the inscribed circle. It will always be in the triangle itself, and can be found by the concurrent point of the three angle bisectors. It is the point that is the same distance to the three sides of the triangle.



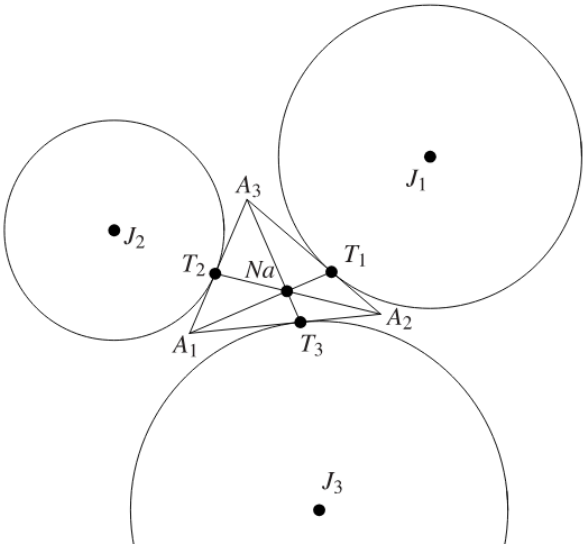
Escribed - a circle formed tangent to the sidelines of a triangle. Each triangle will have three corresponding escribed circles. It is found by extending the sides of the triangle. Also known as an **excircle** or **equicircle.**



Gergonne Point - using the incircle, draw segments from each vertex to the point of tangency on the opposite side. When done, as seen below, the three segments will have a point of concurrency.



Nagel Point - using the three excircles for a triangle, find the points where the circles are tangent to said triangle. Draw segments from each vertex to the points of tangency on the opposite side. The three segments will have a point of concurrency which is the Nagel Point.



Heron's Formula - the area of a triangle using the formula below, for which *s* is the semiperimeter, and *a, b, c* are the side lengths.

$$\alpha(\triangle ABC) = \sqrt{s(s-a)(s-b)(s-c)}.$$