

Triangle Centers

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Abstract

This project aims to introduce the basic centers related to a triangle. Incenter, circumcenter, centroid, orthocenter, nine point circle, and symmedian point are drawn for a triangle using the 2D construction tools in GeoGebra. The dimensions of the triangle can be adjusted by dragging its vertices. GeoGebra's interactive interface allows us to observe the correlations in positions of the centers of a triangle by varying one or more of the triangle properties.

Many centers enumerated in the massive [reference](#) of Kimberling Centers can be plotted using only three types of lines: perpendicular bisectors, angular bisectors, and medians. A major research avenue has been to represent all Kimberling centers in terms of the radii of the incircle and circumcircle or coordinates of lower valued Kimberling centers.

KEYWORDS: Triangle centers, Kimberling, centroid, circumcircle, incenter, nine-point circle, symmedian point.