Stupel, Moshe
A triangle “broken” into four triangles – the special status of the central triangle. (English) Zbl 1416.51012 J. Geom. Graph. 22, No. 2, 253-256 (2018).

The three points of intersections of the three cevians through a point inside a given triangle with its sides divide this triangle into a central triangle and three corner triangles. After the calculations of the areas of these triangles, the author proves a chains of inequalities among of arithmetic, geometric and harmonic means of these areas and the area of the central triangle. More other properties of the central triangle are demonstrated: the area (perimeter) of the central triangle is not smaller than the minimum of areas (perimeters) of the three corner triangles.

Reviewer: Sándor Nagydobai Kiss (Satu Mare)

MSC:
51M04 Elementary problems in Euclidean geometries
51M16 Inequalities and extremum problems in real or complex geometry
51M25 Length, area and volume in real or complex geometry

Keywords: cevians; central subtriangle; area

Full Text: Link