1114-52-49 **Hyun Jin Kim*** (hyunjin.sun.kim@gmail.com), Hofstra University, Hempstead, NY 11549-1000, and **Hyun Sun Kim**. *Special Configurations of Triangle Centers.*

For a given triangle, the circumcenter is the unique point in the plane of the triangle at equal distance from all three vertices. Similarly, the orthocenter is the point of intersection of the altitudes of the triangle. Euler proved that for any triangle, the midpoints of the sides, the feet of the altitudes and the midpoints of the segments joining the vertices of the triangle to the orthocenter lie on a circle. The center of this circle is the 9-point center of the triangle. We prove the following: Let A_1, A_2, A_3, A_4 be four points in the plane, no three on a line, all four not on a circle. For all $1 \leq i \leq 4$, let O_i and ω_i be the circumcenters and the 9-point centers of triangle $A_{i+1}A_{i+2}A_{i+3}$, respectively. Then the four-point configurations (O_1, O_2, O_3, O_4) and $(\omega_1, \omega_2, \omega_3, \omega_4)$ are similar. Moreover, the similarity ratio is not constant but depends on the initial points A_i in a way that is made explicit.) There are many triangle centers: these special points can be defined either as the result of some geometric construction (as it is the case with the circumcenter, the orthocenter, and the 9-point center) or may just have a pure algebraic description as explained in the paper. (Received July 31, 2015)