This month’s “free sample” is:

4096. Proposed by Abdilkadir Altintaş.

Let $ABC$ be a heptagonal triangle with $BC = a$, $AC = b$ and $AB = c$. Suppose $CN$ is the internal angle bisector of $\angle BCA$, $BM$ is the median of triangle $ABC$ and $K$ is the symmedian point of $ABC$. Show that $N, K$ and $M$ are collinear.