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**Algorithms for drawing ellipses using GeoGebra.**

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From the introduction: In this article we propose three algorithms for drawing ellipses. The first algorithm aims to find the locus of points in the plane whose distances to a given point are half their distances to a given line. The second algorithm aims to find the locus of points each of which divides, in the same ratio, the segment drawn from a point on a given circle perpendicular to a line containing a fixed chord of the circle, as the point moves along the circle. The third algorithm is related to a new definition which states that the ellipse is the locus of points which have a constant sum of squares of distances from the sides of a given triangle. The first two algorithms may be applied on any dynamic geometry software, while the last one utilizes the unique features of the GeoGebra software. The outcomes of the second and the third algorithms are families of ellipses, one of which covers the interior of a circle and the other which covers the plane with one hole. Summary: The article evaluates three algorithms for drawing ellipses. Explored is the usage of the Compass tool on a TI-92 graphing calculator as well as the link between geometry and algebra through the GeoGebra. Analyzed is the algorithm on the locus of points in the plane as well as the use of a dynamic geometry software in determining a general point in the locus.

*Classification:* G70 G80 U70

*Keywords:* ellipses; geometric constructions; drawing; algorithms; mathematical software; geometry software; analytic geometry; locus; distance; circles; triangles; straight lines; intersection points; conic sections; family of ellipses; quadratic curves; coverings