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Dynamic investigation of loci with surprising outcomes and their mathematical explanations.

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Summary: The locus is a very important concept in Euclidean geometry since it serves as a tool for solving different problems, and allows geometric constructions to be carried out. The teaching of the subject of loci in various mathematics courses includes solution of different exercises in which the student is required to find the locus in accordance with the data of the question. The present paper offers a different view of the subject of loci, which brings about conceptual understanding of the subject with identification of conserved properties and suitable generalizations obtained through investigation that includes the use of dynamic geometric software (GeoGebra). General formulas were developed for the equation of the locus in two cases. In the article, there are links to geometric applets which allow one to demonstrate the loci formed in some cases.

Classification: G40 G70 U70

Keywords: locus; combining technology and mathematics; dynamic geometry software

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