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Evaluating and writing dynamic geometry tasks.

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Summary: The advent of dynamic geometry software has changed the way students draw, construct, and measure by using virtual tools instead of or along with physical tools. Use of technology in general and of dynamic geometry in particular has gained traction in mathematics education, as evidenced in the Common Core State Standards for Mathematics. Research has shown the potential benefit of using technology, particularly dynamic geometry tasks, to promote mathematical reasoning. The Common Core State Standards for Mathematics (CCSSM) high school geometry standards require students to “make formal geometric constructions with a variety of tools and methods”, and dynamic geometry software is among the tools listed. Further, *K. F. Hollebrands* [J. Math. Behav. 22, No. 1, 55–72 (2003; ME 2004a.00552)] has noted that within such dynamic environments students have opportunities to consider invariant relationships through dragging as well as make corresponding conjectures and conclusions. However, little guidance is provided to teachers for evaluating the quality of dynamic geometry tasks, much less for writing their own. The purpose of this article is to introduce a framework for analyzing and writing dynamic geometry tasks that are designed to engage students in mathematical reasoning. The author begins by asking readers to compare two sample tasks, each of which is designed to engage students in developing and testing conjectures about parallelograms. He then introduces the framework and illustrates how it can be used to evaluate the potential of each task in accomplishing the desired result. (ERIC)

Classification: U70 G40 D39

Keywords: geometry; use of technology; dynamic geometry software; activities; task analysis; mathematical tasks; professional development

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