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Steketee, Scott; Scher, Daniel

Connecting functions in geometry and algebra.

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Summary: One goal of a mathematics education is that students make significant connections among different branches of mathematics. Connections – such as those between arithmetic and algebra, between two-dimensional and three-dimensional geometry, between compass-and-straight-edge constructions and transformations, and between calculus and analytic geometry – form the backbone of important mathematical understandings. In this article, Steketee and Scher describe a way of forging a strong connection between geometric and algebraic functions, a connection that can deepen students' concept of function and develop students' appreciation for the interconnectedness of geometry and algebra. If students have no meaningful way to connect, for instance, dilations and translations in the geometric realm with linear functions in the algebraic realm, the connection between geometric and algebraic functions will be a bit of trivia without real value. This article includes web-available mathematics software tools and five activities, geometric functions that provide students an alternative environment for engaging with function concepts. The activities also reveal a connection between geometry and algebra with the “same” function created by dilation and translation in one realm and by multiplication and addition in the other. (ERIC)

Classification: I23 G43

Keywords: geometry; algebra; mathematical concepts; mathematical formulas; teaching methods; transformations; educational practices; educational strategies; functions

<http://www.nctm.org/Publications/Mathematics-Teacher/2016/Vol109/Issue6/Connecting-Functions-in-Geometry-and-Algebra/>