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Lew, Hee-Chan; Yoon, Okyo

Study on the learning of quadratic equation through proportion in a dynamic environment.

Lindmeier, Anke M. (ed.) et al., Proceedings of the 37th conference of the International Group for the Psychology of Mathematics Education “Mathematics learning across the life span”, PME 37, Kiel, Germany, July 28–August 2, 2013. Vol. 3. Kiel: IPN–Leibniz Institute for Science and Mathematics Education at the University of Kiel (ISBN 978-3-89088-289-5). 249-256 (2013).

Summary: This study investigated the process of constructing the geometrical solutions to the quadratic equation, $x^2 - ax + b^2 = 0$ through proportions between lengths of similar triangles in a dynamic environment. To do this, we provided one task to 4 ninth grade students and observed the process of the students' activities. As a result of this study, our research shows the possibility and advantage of geometrical method in learning the quadratic equation.

Classification: H33 U73 G73

Keywords: quadratic equations; proportion; geometrical solution; dynamic environment