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Type: Article in Journal
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Title: Proof and Explanation from a Semiotical Point of View
Year: 2006
Journal: Revista Latinoamericana de Investigación en Matemática Educativa
Volume: 9
Pages: 23-43
Keywords: Mathematics Education, Proof, Explanation, Mathematics
Abstract: A distinction between proofs that prove and proofs that explain has over and again played an important role within recent discussions in epistemology and mathematics education. The distinction goes back to scholars who, like Bolzano or Dedekind, have tried to reestablish pure mathematics as a purely conceptual and analytical science. These endeavors did in particular argue in favor of a complete elimination of intuitive or perceptual aspects from mathematical activity, arguing that one has to rigorously distinguish between a concept and its representations. Using a semiotical approach which negates such a separation between idea and symbol, we shall argue that mathematics has no explanations in a foundational sense. To explain amounts to exhibiting the meaning of something. Mathematics has, however, as we shall try to show, no definite meanings, neither in the structural intra-theoretical sense nor with respect to intuitive objectivity. Signs and meanings are processes, as we shall argue along with Peirce.
ISSN: 16652436
Language: English