
Impact of informatics on mathematics and its teaching. On the importance of epistemological analysis to feed didactical research

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Abstract

The teaching of mathematics has been questioned for more than 30 years by the development of informatics due to its relations with mathematics : they have some common foundations and a strong link with proof, there is a significant development of shared fields and objects at their interface, and computers changed the way some mathematicians work. In coherence with the role played by epistemology in didactics of sciences, we defend that epistemological studies of the relations between mathematics and informatics must feed the didactical research on these issues. We will exemplify our point and show how epistemology of mathematics and informatics can be helpful to tackle these questions, giving perspectives about the relations between proof and algorithm, the role of language in mathematics and informatics, the thinkings in mathematics and informatics, computer-assisted mathematics, and the new objects and the new fields between mathematics and informatics.

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