Dynamic Geometry Software Supplemented with Computer Algebra as a proving tool

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The topic of this contribution is aimed at lower and upper secondary school mathematics teaching as well as at university training of teachers of mathematics.

Joint use of computer algebra (CAS) and dynamic geometry software (DGS) or even an incorporation of CAS into DGS brings new possibilities into the teaching of mathematics, such as experimentation, the modelling of real-world situations or deriving and proving of hypotheses [3, 4, 5]. We will deal particularly with the latter issue of proving, namely with the question of the use of DGS and CAS as a means of finding a proof. While the positive role of a proof in mathematics teaching and learning is obvious [2], the beneficial use of computers to find a proof suitable for teaching still requires detailed research. Also, among others, in connection with the actual integration of algorithms of the automated theorem proving into DGS [1]. First, we will briefly present up to date findings of such research. Then, through specific examples, coming from secondary school mathematics or teacher training courses, we will introduce several possible ways of using computer algebra and dynamic geometry when dealing with proofs in mathematics teaching.

References

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