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Computerized proof techniques for undergraduates.

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Summary: The use of computer algebra systems such as Maple and Mathematica is becoming increasingly important and widespread in mathematics learning, teaching and research. In this article, we present computerized proof techniques of Gosper, Wilf-Zeilberger and Zeilberger that can be used for enhancing the teaching and learning of topics in discrete mathematics. We demonstrate by examples how one can use these computerized proof techniques to raise students' interests in the discovery and proof of mathematical identities and enhance their problem-solving skills.

Classification: E55 U75 I35

Keywords: Gosper's algorithm; Zeilberger's algorithm; combinatorial identities; recurrence equations; Wilf-Zeilberger

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