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Computational Complexity of College Math Eigenvalue Problems

Providing students with suitable complex exercises is crucial to keeping them motivated and leading them to deeper understanding. Making such problems manually takes mathematics teachers' precious time which can otherwise be used to mentor students. Many software tools and services for automatic generation of math problems are found on the Web, but all of them provide only materials of high school level or below. In addition, no standardized methods are provided to evaluate and control the computational complexity of generated problems. The authors newly proposed a framework for evaluating computational complexity from learners' view, aiming to apply our framework to automatic generation of college math problems with controlled computational complexity. Our framework helps teachers to prepare teaching materials and thereby to save their time for the interaction with their students.

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