

Computer Algebra Systems and Dynamic Geometry Systems in Math Teaching

Preface

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In the last twenty years of the 20th century the quick renewal of informational-communicational technology resulted in fundamental new opportunities and in many didactical tasks, which have to be solved in education. This is our particular challenge in math education.

The computer algebra systems (CAS) and the dynamical geometry systems (DGS) are probably the most useful elements of the newly created tools. Nowadays the necessity of CAS and DGS usage in math education is accepted in the professional public opinion as well.

We know that application of these new tools produces shifting of accents and in some places it rearranges the contents of teaching materials. The elaboration of didactics of CAS has just begun and we have to solve lots of problems, which are frequently recreated.

We would like to contribute to this task with this study selection. These papers are based on those lectures which were presented at the International Symposium, Anniversary of Pollack Mihály Engineering Faculty, May 31-June 1, 2002, Pécs, Hungary.

Three of these papers deal with dynamical geometry systems, seven of them discuss computer algebra systems. Some words about our papers:

Bertha, Tünde examines the effects of combination of traditional and computer based tools in mathematics education.

Schumann, Heinz speaks about computer aided solution of 3D-problems in analytic geometry.

László, István introduces the Euklides dynamic geometric construction program.

Fuchs, Karl Jozef reports his research about computer algebra systems in math education

Karsai, János and his co-workers report their experiences from visualization and art in the mathematics classroom.

Klincsik, Mihály writes about teaching function approximation techniques using MAPLE and INTERNET.

Lindner, Wolfgang writes about CAS supported multiple representations in elementary linear algebra.

Perjési Hámori, Ildikó speaks about application of CAS for teaching of integral-transforming theorems.

Maróti, György reviews his automata constructions in Maple.

Sárvári, Csaba reports his works in field of network based math teaching, using CAS.

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