



Differential Equations as a Teaching Topic in School?

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Abstract:

The use of pocket calculators which incorporate CAS render certain aspects of the mathematics curriculum unnecessary and allow the teaching of new math and science topics. Could this include differential equations and methods of solving them by means of CAS? It is intended to present how differential equations could be introduced in math or physics lessons. At first the method of solving first and second order differential equations numerically must be explained to the students. Then they have to learn how the results can be presented on pocket calculators as TI-89 and TI-92Plus using tables and the different graphical displays. The method is then applied to linear and nonlinear oscillations. Even chaotic oscillation can be modelled and it is possible to demonstrate typical features as chaotic transition, bifurcations, sensitivity with respect to initial conditions etc.
