

Using TI-92 in the 9th-Grade of Austrian Grammar Schools - Hypotheses, Experiences, Results, Problems

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Abstract:

In 1997/98 thirty classes of the 9th-Grade in grammar schools participated in the Austrian TI-92 project. After a first phase of learning how to use the TI-92 in a successful way, the teachers of the project had to carry out a sequence of lessons in the same way in every semester. Both sequences began with a test to control the knowledge of the use of the TI-92. The goal was to find out with which exercises it would be possible to get comparable conditions in all classes. In the following lessons the teachers had to observe, which ways of solving a new problem students were taking when using a computer algebra system. The sequence ended with a final test. The results of the tests and the reports of the observations were collected and were the foundation of the final report.

In the first sequence the teachers had to find out the various methods the students were taking with the TI-92, when they had to solve a square equation for the first time. It was surprising how many different ways of solving a square equation were found. The second sequence concerning analytic geometry was taught at the end of the year. The teachers had to observe how the students liked to solve analytic problems with modules offered by the TI-92 such as norm, unitv, dotp and crossp or if they also tried to find functions of their own. The results of the observations were very different and presumably depended on whether teachers were ready to apply the modular method in a useful way in their lessons.

The research teachers used the TI-92 not only for teaching, they used it for tests too. Seventy of them collected their most important and sometimes unexpected results at their final meeting in August 1997:

- the problems have to be more goal oriented @ text longer instead of shorter.
 - TI-92 has no floppy @ much documentation in test book, therefore fewer examples.
 - difficult decision: What is to be the minimum knowledge in mathematics without the TI-92? What minimum knowledge about the TI-92 is an absolute must?
 - for solving problems it is very important not always to insist on the use of the TI-92.
 - students find new ways with the TI-92 @ more work for the teacher
 - modules are a good chance for good students @ a new problem for bad students.
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