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Why Daan and Sanne can't add

Abstract:

Daan and Sanne (these are common Dutch names) represent average children in the highest class of Dutch primary schools (age group 12 years). They can't solve simple arithmetical problems, for example subtracting 8457 from 16234, multiplying 99 by 99 or dividing 6745 by 84. They cannot add, subtract, multiply or divide fractions. Calculating the yearly interest on an amount of 900 euro when the interest rate equals 4% is too difficult for them.

Clearly, there is a problem, as recognized recently by the deputy ministers of education and the Royal Dutch Academy of Science. Nowadays, in secondary schools mathematics teachers are forced to give crash courses in arithmetic. From 2014 on, there will be written exams in arithmetics at the end of secondary schools (age 16 – 18). During the past 20 years, a radical change has occurred in all Dutch mathematical textbooks for primary schools, the so-called 'realistic mathematics education' (RME), initiated by members of the Freudenthal Institute of Utrecht university. Although they claim not to be responsible for the sharp decline in mathematical skills of Dutch children, I will, however, argue that severe didactical and mathematical misconceptions in RME have indeed caused these problems.