

# Problems with Figures as Critical Area of School Mathematics

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## Abstract

Besides providing information to pupils, their parents, teachers and school founders about the achieved level in mathematics, the pupils' results in mathematics at international or national testing can also be used for other purposes. In our research, the results of Slovak national testing T9 (success rate of pupils and difficulty of individual thematic areas and test items) seem to us to be a reasonable source for identification of critical areas in school mathematics. As critical areas of school mathematics we understand areas of school mathematics "... in which pupils often and repeatedly fail..." Based on the findings of such areas, we target more at these areas in the preparation of future teachers of mathematics. The special group of problems, so-called problems with figures, seems to be one of the critical areas. In the assignment of these problems, a part of the input information is not of a purely textual character and in the process of solving the solver has to read information about objects appearing in the problem and relations between objects from figures (e. g. scheme, graph, chart, table, picture or map). The paper focuses on success rates of pupils in solving problems of this type and on various roles and functions of figures in problems with figures from the testing T9.

**Keywords:** critical areas in school mathematics; evaluation; problems with figures; roles of figures; testing