

ZMATH 2004e.03880

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On the Legacy of G. Pólya: Some new (old) aspects of mathematical problem solving and relations to teaching.

Teach. Math. Comput. Sci. 1, No. 2, 169-189 (2003).

Summary. In this article are given some new aspects of mathematical problem solving. A framework is presented by three main resources: (1) Pólya's studies about mathematical heuristics are augmented by information drawn from a study of the history of mathematical problem solving. (2) Connections are presented between mathematical problem solving and mathematical beliefs. (3) Experience with a special program for mathematical talented students is sketched. On this background a new textbook-series has been developed and some teaching examples are taken from this context. An outlook is given on some new research on teaching of problem solving, including possible relations to modern brain research.

Classification: C30