

Kuczma, Marek
Gilányi, Attila (ed.)

An introduction to the theory of functional equations and inequalities. Cauchy's equation and Jensen's inequality. Edited by Attila Gilányi. 2nd ed. (English) [Zbl 1221.39041](#)
Basel: Birkhäuser (ISBN 978-3-7643-8748-8/pbk). xiv, 595 p. (2009).

In 1985, *M. Kuczma*, the incontestable leader of the celebrated Polish School of Functional Equations, has published the monograph [An introduction to the theory of functional equations and inequalities. Cauchy's equation and Jensen's inequality. Warszawa-Kraków-Katowice: Państwowe Wydawnictwo Naukowe (1985; [Zbl 0555.39004](#))]. This book made a tremendous impact on the researchers in the domain of functional equations. Marek Kuczma succeeded to amalgamate many essential problems connected with Cauchy's equation and Jensen's inequality. The results were obtained by using subtle tools from set theory, topology, measure theory, algebra.

The present book is the second edition "ne varietur" of the book from 1985. Since the first edition was published more than 20 years ago and since the first edition was sold out several years ago, we remind the structure (unchanged) of the book. I. Preliminaries (Set theory, topology, measure theory, algebra). II. Cauchy's functional equation and Jensen's inequality (Additive functions and convex functions, elementary properties of convex functions, continuous convex functions, inequalities, boundedness and continuity of convex functions and additive functions, the classes of sets introduced by Roman Ger and Marek Kuczma in the study of boundedness and continuity of convex functions and additive functions, Properties of Hamel bases, further properties of additive functions and convex functional III. Related topics (related equations, derivations and automorphisms, convex function of higher orders, subadditive functions, nearly additive functions and nearly convex functions, extensions of homomorphisms). Bibliography (presented in slightly modified form) 328 items.

Thanks are due to Mr. Attila Gilnyi and to Birkhäuser Verlag for this book which in addition to its scientific intrinsic value may be regarded as honouring the memory of the great mathematician Marek Kuczma who died prematurely in 1991.

Reviewer: [Borislav Crstici \(Timișoara\)](#)

MSC:

- [39B99](#) Functional equations and inequalities
- [39B72](#) Systems of functional equations and inequalities
- [39-02](#) Research exposition (monographs, survey articles) pertaining to difference and functional equations
- [26A51](#) Convexity of real functions in one variable, generalizations

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