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**Problem solving in mathematics with MATHCAD and MATHCAD PRIME. (Mathematik-Problemlösungen mit MATHCAD und MATHCAD PRIME.)**

Wiesbaden: Springer Vieweg (ISBN 978-3-642-33893-9/pbk; 978-3-642-33894-6/ebook). xv, 303 p. EUR 29.99; \$ 39.95; EUR 22,99/ebook (2013).

This book is an introduction to the computer algebra systems MATHCAD and MATHCAD PRIME. It starts by comparing MATHCAD to other computer algebra systems and their differing purposes, then explaining the user interface. The main part of the book is concerned with exposing the syntax, commands and other features of MATHCAD and MATHCAD PRIME, making explicit the differences between the two variants. The organization is according to mathematical standard topics like functions, algebraic manipulation of terms, linear algebra, equations and inequalities, series, calculus, vector analysis, difference and differential equations, Fourier-, Laplace- and  $Z$ -transforms, optimization, combinatorics, error analysis, probabilities, statistics and mathematical economics. For each topic first the mathematical background is exposed curtly with emphasis on possible limitations of the underlying numerical or other methods. The description of commands is immediately followed by examples which often show subtleties of entering expressions, step-by-step directions of how-to's or other tricks, e.g. curve and surface integrals, solving difference equations with  $Z$ -transforms, differential equations with Laplace transforms and numerical integration by Monte Carlo methods. Mostly there are no applications to practical problems but with exceptions in economics: a complex optimization problem in transportation and the Leontief input-output-model are featured. There are also short sections about programming, reading and writing data from and to files and graphics, but animations and the special feature of user-defined mathematical operators are not covered. The style is somewhat repetitive, but this allows the user to start reading virtually anywhere in the text without missing important information. The book will be useful to anyone who needs a quick access to MATHCAD.

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