Methods of mathematical economics: linear and nonlinear programming, fixed-point theorems

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Deskripsi Lengkap: https://lib.ui.ac.id/detail?id=20442736&lokasi=lokal

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Abstrak

Many advances have taken place in the field of combinatorial algorithms since Methods of Mathematical Economics first appeared two decades ago. Despite these advances and the development of new computing methods, several basic theories and methods remain important today for understanding mathematical programming and fixed-point theorems. In this easy-to-read classic, readers learn Wolfe's method, which remains useful for quadratic programming, and the Kuhn-Tucker theory, which underlies quadratic programming and most other nonlinear programming methods. In addition, the author presents multiobjective linear programming, which is being applied in environmental engineering and the social sciences.

The book presents many useful applications to other branches of mathematics and to economics, and it contains many exercises and examples. The advanced mathematical results are proved clearly and completely. By providing the necessary proofs and presenting the material in a conversational style, Franklin made Methods of Mathematical Economics extremely popular among students. The addition of a list of errata, new to this edition, should add to the book's popularity as well as its usefulness both in the classroom and for individual study.

The book has three chapters: "Linear Programming," "Nonlinear Programming," and "Fixed-Point Theorems." The first and third chapters include the economic equilibrium theorems of von Neumann and of J. F. Nash, while the second chapter includes Kuhn-Tucker theory and Wolfe's simplex algorithm for quadratic programming. The book concludes with easy, elementary proofs of the famous theorems of Brouwer, of Kakutani, and of Schauder. These fundamental results are usually proved only in advanced texts in topology, economic theory, and nonlinear analysis.