

Book Reviews

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BOOK REVIEWS

Recski, A.: MATROID THEORY AND ITS APPLICATIONS IN ELECTRIC NETWORK THEORY AND IN STATISTICS. Akadémiai Kiadó, Budapest 1989, xiii+531 pp. ISBN 963 05 5253 1

This book is published as joint edition by Akadémiai Kiadó, Budapest and Springer-Verlag as Vol. 6 in the series "Algorithms and Combinatorics".

The book is intended for mathematicians and engineers alike. Since their motivations and backgrounds are usually different, some interesting and unusual methods are applied in this book. Thus, mathematical results are presented in the odd-numbered chapters only. Even-numbered chapters describe associated applications. Those mathematicians not interested in these applications can simply read the odd-numbered chapters.

The chapters consist of 2 to 6 sections. Each section contains a basis description, followed by exercises and problems. Exercises are generally easy. Problems are more difficult, usually requiring longer calculations or proofs. Mathematicians interested in the applications will find all the necessary engineering concepts in the even-numbered chapters, hence no background knowledge from engineering is assumed.

The mathematical chapters are:

1. Basic concepts from graph theory,
3. Planar graphs and duality,
5. The theorems of Köning and Menger,
7. Basic concepts in matroid theory,
9. Algebraic and geometric representation of matroid,
11. The sum of matroids I,
13. The sum of matroids II,
15. Matroids induced by graphs,
17. Some recent results in matroid theory.

The special attempt was made by the author to make the somewhat abstract concepts of matroid theory as clear as possible. Therefore, since matroid theory is, in a sense, a common generalization of graph theory, linear algebra and geometry, every new concept is presented in the language of graphs, matrices and geometries as well. There are about 600 figures, 800 exercises and problems, and 400 references in the book.

All these facts made this book an excellent one for every research worker in discrete mathematics and in applied mathematics, too.

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