

problems of theoretical physics. It deserves to be widely read and should serve as a valuable source of research problems and of additional material for conventional courses in general relativity and quantum field theory.

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Perspectives in Nonlinearity, by Melvyn S. Berger and Marion S. Berger. 189 pages. Benjamin, New York, 1968. Cloth U.S. \$12.50; Paper U.S. \$3.95.

The book centres around the degree of a mapping and critical point theory in a way directed to applications in differential equations. The careful introduction of the main concepts, through the finite dimensional case to infinite dimensions, makes this book an excellent starting point for students of the subject. The selected applications in both ordinary and elliptic differential equations are well suited to indicate the power of the theory and give the student a feeling for its use.

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Exercices de Combinatorique avec Solutions: Tome 1, par A. Kaufmann et D. Coster. XII + 155 pages. Dunod, Paris, 1969. 29F.

The first part of Kaufmann's *Introduction à la Combinatorique en vue des applications*, which was reviewed in this Bulletin, (1) 12 (1969), p. 112, deals with the classical enumeration problems. The present volume contains the solutions to nearly all the exercises in this part of the book; the solutions of the exercises in the remainder of the book are reserved for later volumes. The solutions and explanations are sufficiently detailed to be useful, perhaps, in a course on combinatorics even if Kaufmann's book is not used as the text.

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An Introduction to Mathematical Logic, by Gerson B. Robison. xii + 212 pages. Prentice-Hall, Englewood Cliffs, N.J., 1969.

The author states that this textbook is intended for use by mathematics students in their middle undergraduate years. There are twelve chapters. In the first three the student is introduced very gently to the propositional calculus ("Where do little axioms come from?"). Ch. IV through X introduce the first order predicate calculus (Ch. IX being devoted to "Techniques of Negation"). And Ch. XI and XII introduce the membership relation and Boolean algebras. In the reviewer's

opinion the text is not suitable for a college mathematics course. It is too elementary, important distinctions are not made, and nontrivial errors have been found. The reader is referred to the thoughtful review by G. Fuhrken in the *American Mathematical Monthly*, December 1969, p. 1160.

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Introduction to the Theory of Partially Ordered Spaces, by B. Z. Vulikh. xv + 387 pages. Translated by Leo F. Boron and edited by A. C. Zaanen and Kiyoshi Iseki. Noordhoff, Groningen, 1967. U.S. \$28.

This work, first published in Russian in 1961 under the Russian title *Vvedenie v teoriyu poluuporiadochennykh prostranstv*, gives a highly readable introduction to the subject as it stood shortly before that date. A number of the later references appear to have been added by the editors. In this regard there are numerous helpful remarks (added presumably by the editors) in square brackets throughout the text, which help to elucidate the material under discussion, and whenever possible English-language references are provided (within square brackets) instead of Russian ones.

The work is divided into thirteen chapters. The first three form an introduction to linear lattices culminating in the consideration of Riesz spaces. Ch. IV deals with various sorts of lattice-completeness. Ch. V concerns the representation of certain kinds of linear lattices with the aid of continuous functions on compacta. Here only the classical theory is considered. Ch. VI and VII deal with various kinds of topologies that can be imposed upon classes of linear lattices.

After laying this ground work, the author considers linear operators on Riesz spaces (Ch. VIII) finishing with an integral representation of linear operators.

Ch. IX deals with linear functionals, conjugate spaces, and the embedding of a Riesz space in its second conjugate space. Ch. X deals with extensions of linear operators, including a generalized Hahn–Banach Theorem. Ch. XI and XII consider the application of the results in the previous chapters to the theory of self-adjoint operators in Hilbert Space and the solution of functional equations by successive approximation. Finally Ch. XIII treats the more general topic of partially ordered normed spaces.

The book should be easily grasped by students who “know the basic material of real variables, topology, abstract algebra and functional analysis”—to quote the dust jacket.

I would recommend it to anyone so prepared.

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