

This book presents a good introduction to the several topics which it treats. However, the level of presentation is rather mixed, since about one third of the material assumes a knowledge of functional analysis.

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10 [4, 6].—IVAR STAKGOLD, *Boundary Value Problems of Mathematical Physics, Vol. I*, The Macmillan Company, New York, 1967, viii + 340 pp., 24 cm. Price \$12.95.

This is the first of two volumes intended for a graduate course in mathematical physics. Although the topics discussed are mathematical in nature, it is written in a clear and pleasant style by a man who knows how to talk to physicists and engineers and who enjoys doing so.

While the easier results are proved, more difficult theorems or those requiring lengthy proof are motivated heuristically, in such a way that the reader at least gets the feeling of how the proof goes. In such cases it is clearly stated that a proof is needed, and whether the proof is difficult or easy.

Chapter 1 deals with ordinary differential equations. In addition to the standard material on this subject, there is a beautiful discussion of one-dimensional distribution theory. Its purpose is to provide a firm foundation for the Dirac delta function, which is then used to define fundamental solutions and Green's functions.

Chapter 2 is an introduction to linear spaces, with particular emphasis on linear transformations in a Hilbert space.

These concepts are applied in Chapter 3 to the study of linear integral equations with symmetric kernels. This chapter includes some discussion of variational methods both for nonhomogeneous problems and for eigenvalue problems. In particular, eigenfunction expansions are discussed, and the Rayleigh-Ritz method and the eigenvalue inclusion theorem are presented.

Chapter 4 deals with singular self-adjoint boundary value problems for second-order ordinary differential operators. It includes a proof of Weyl's limit point-limit circle theorem, and a discussion of the general spectral representation.

The author has been able to concoct a large set of exercises which are nontrivial and educational, but still not too difficult for students taking the course for which the book is designed.

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11 [4, 5, 7].—A. W. BABISTER, *Transcendental Functions Satisfying Nonhomogeneous Linear Differential Equations*, The Macmillan Company, New York, 1967, xi + 414 pp., 24 cm. Price \$14.95.

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