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Nota di contenuto	1 Hilbert spaces -- 1.1 Complete sets, Fourier expansions -- 1.1.1 Preliminary notions. Subspaces. Complete sets -- 1.1.2 Fourier expansions -- 1.1.3 Harmonic functions; Dirichlet and Neumann Problems -- 1.2 Linear operators -- 1.2.1 Linear operators defined giving T en = vn, and related Problems -- 1.2.2 Operators of the form T x = v(w;x) and T x = ån vn(wn;x) -- 1.2.3 Operators of the form T f (x) = j(x) f (x) -- 1.2.4 Problems involving differential operators -- 1.2.5 Functionals -- 1.2.6 Time evolution Problems. Heat equation -- 1.2.7 Miscellaneous Problems -- 2 Functions of a complex variable -- 2.1 Basic properties of analytic functions -- 2.2 Evaluation of integrals by complex variable methods -- 2.3 Harmonic functions and conformal mappings -- 3 Fourier and Laplace transforms. Distributions -- 3.1 Fourier transform in L1(R) and L2(R) -- 3.1.1 Basic properties and applications -- 3.1.2 Fourier transform and linear operators in L2(R) -- 3.2 Tempered distributions and Fourier transforms -- 3.2.1 General properties -- 3.2.2 Fourier transform, distributions and linear operators -- 3.2.3 Applications to ODE's and related Green functions -- 3.2.4 Applications to general linear systems and Green functions -- 3.2.5 Applications to PDE's -- 3.3 Laplace transforms -- vvi Contents -- Groups, Lie algebras, symmetries in physics -- 4.1 Basic properties of groups and representations -- 4.2 Lie groups and algebras -- 4.3

	The groups SO3; SU2; SU3 -- 4.4 Other direct applications of symmetries to physics -- Answers and Solutions. .
Sommario/riassunto	This book is the second edition, whose original mission was to offer a new approach for students wishing to better understand the mathematical tenets that underlie the study of physics. This mission is retained in this book. The structure of the book is one that keeps pedagogical principles in mind at every level. Not only are the chapters sequenced in such a way as to guide the reader down a clear path that stretches throughout the book, but all individual sections and subsections are also laid out so that the material they address becomes progressively more complex along with the reader's ability to comprehend it. This book not only improves upon the first in many details, but it also fills in some gaps that were left open by this and other books on similar topics. The 350 problems presented here are accompanied by answers which now include a greater amount of detail and additional guidance for arriving at the solutions. In this way, the mathematical underpinnings of the relevant physics topics are made as easy to absorb as possible. .