

The 22 chapters of the book are grouped in four Parts entitled respectively General theory ; Complex multiplication ; Elliptic curves with singular invariants ; Elliptic curves with non-integral invariant ; Theta functions and Kronecker limit formulas.

The author has performed a notable service by summarising modern developments in the field covered by his book and achieving some simplification in the process.

A. ERDÉLYI

JAMESON, G. J. O., *Topology and Normed Spaces* (Chapman and Hall, London, 1974), xv + 408 pp., £3.80 (soft cover), £5.80 (hardback).

This book has developed out of lectures given by the author at the universities of Warwick and Innsbruck. The only formal prerequisites are elementary analysis and some linear algebra. As the title indicates the book is divided into two main sections, Part I on Topology and Part II on Normed linear spaces. Part I contains subsections on basic concepts, metric and normed spaces, separation properties, connected sets, bases of open sets and countability axioms, complete metric spaces, compactness, Urysohn's lemma and the Tietze extension theorem, product spaces and Cantor spaces. Part II contains subsections on linear mappings and functionals, dual spaces, finite-dimensional spaces, convexity, Hahn-Banach theorem, uniform boundedness theorem, open mapping theorem and closed graph theorem, spaces of continuous functions, weak topologies, Tychonoff's theorem, Hilbert spaces and compact linear mappings. There are also five subsections of Part II which reflect the author's personal interests. These are entitled Complemented subspaces, Bases, Unconditional convergence, Linear lattices, and The duality of pairs of subspaces. There are short appendices on Countability and Zorn's lemma, a comprehensive bibliography and an index. Each subsection contains a set of exercises of varying degree of difficulty. The book is very well written and should prove extremely valuable both to undergraduates and to those teaching undergraduate courses in topology or functional analysis.

H. R. DOWSON

RILEY, K. F., *Mathematical Methods for the Physical Sciences* (Cambridge University Press, 1974), xvi + 533 pp., £8.75 (cloth), £3.95 (soft cover).

This book, subtitled "An informal treatment for students of physics and engineering", covers preliminary calculus (revisionary), vector algebra and calculus, ordinary differential equations, Fourier series and transforms, partial differential equations, numerical methods, calculus of variations, eigenvalue problems, matrices, tensors, and complex variable theory.

The author acknowledges that he is aiming at the "average student", and so he prefers descriptions in words to compact symbolism, and for the same reason avoids notation like u_{xy} , preferring to write the expression out in full. The plan for each section is to motivate the problem and explain the solution idea in words, present the formal mathematics, and then illustrate the method by means of an example, often a physical one. The reader is expected to help in the development by performing part of the routine manipulation himself (hints are provided at the end of the book). There is also a large collection of exercises at the end of each chapter, with solutions to all of them.

On the whole this scheme seems a most successful way of getting across the concepts and the techniques involved. The only drawback is that in some of the explanations difficulties are skated over in a way which could cause misunderstanding, for example, the rôle of boundary values in superposition methods for solving differential equations,