This book is an introduction to the theory of recursive functions. The book contains fourteen chapters.

Chapter I discusses the intuitive concepts of calculable functions and enumerable sets.

Chapters II and III supply the terminology and notation from set theory and mathematical logic necessary to make the book self contained.

Chapters IV to IX develop the standard results on partial recursive functions and recursively enumerable sets (including the cases of primitive and general recursion).

Chapter X presents the elementary results on simple and hyper-simple sets.

Chapter XI introduces the powerful new concept of "numerotage". General results about principal "numerotages" show why such specific technical devices as Godël numbering are so useful.

The last three chapters give applications of the theory developed. Chapter XII concerns calculable real numbers. Chapter XIII deals with the constructive infinity, innumberability and inseparability of sets. Chapter XIV applies the theory to abstract calculating machines.

The book would serve as an excellent introduction to recursive functions for students with a minimum of background. It is extremely thorough with very few details omitted (in fact often unnecessarily repeating arguments completely analagous to previous ones). It does not contain any exercises (and it is difficult to conceive of any that it could). The only bad feature of the book is the extreme number of typographical errors, often several to a page. They occur mostly in the subscripts and superscripts. Most of the errors are obvious but they may prove disconcerting to a student.

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<u>A course in tensors with applications to Riemannian geometry</u>, by R. S. Mishra. Pothishala Private Ld, Allahabad 1965. iii + 199.

This book is designed to meet the requirements of those who wish to make a systematic study of tensors and Riemannian Geometry. It also emphasizes the utilitarian aspect and it will be of some value to those who study tensors as essential tools in other branches like relatively modern algebra, fluid mechanics, elasticity, etc. The presentation is axiomatic and rigorous and the book can be characterised as an elementary modern textbook, the word "elementary" meaning that no fibre bundles or Lie groups are used throughout the book.

In chapter I the author provides an introduction to groups, fields and vector spaces together with the basic properties of determinants. In chapters II-IV an account of tensor algebra is given, including exterior algebra. Chapter V provides the tensor calculus, and the remaining four chapters are dedicated to Riemannian spaces.

The book can be used as a textbook for a one-semester 3 hour honour course in differential geometry, on the fourth year level.

H.A. Eliopoulos, University of Windsor

An introduction to nonassociative algebras, by Richard D. Schafer. Academic Press, New York and London, 1966. x + 166 pages. $7.95.

In recent years a fair number of papers on nonassociative algebras have appeared but there have not been many books on the subject. Amongst those there are, we have for example Jacobson's book on Lie Algebras and that of Braun and Koecher on Jordan Algebras. These have aimed to present a detailed and fairly complete picture of certain types of nonassociative algebras. The spirit of the book under review is quite different. It is the author's intention to assist those beginning the study of nonassociative algebras by presenting certain techniques, e.g. Peirce decomposition relative to a set of idempotents, and certain concepts, e.g. definition of the radical, in the context of several different types of nonassociative algebras. The three main chapters deal with alternative algebras, Jordan algebras and power-associative algebras. Lie algebras are not given a separate chapter but arise as derivation algebras of the alternative and Jordan ones.

Although the book is styled an introduction it is not the case that no results from more advanced works are assumed. On page 22 "we use the known result that every derivation of a finite-dimensional semisimple Lie algebra of characteristic 0 is inner." At this point, and others like it, the reader will find a reference to one of the works in the bibliography. Provided he is willing to consult these references he should find no difficulty in following the arguments used. A rough indication of the level of knowledge required before starting the book can be obtained from the author's remark in the preface that he expects "any reader will be acquainted with the content of a beginning course in abstract algebra and linear algebra" and his reference, without further explanation, to Schur's lemma (p. 15).

The book is carefully written. The author manages to present the involved passages without making heavy weather of them. The same is true of the printer: for example, on pages 35 and 36, where subscripts abound, the way in which the formulae are displayed makes the task of reading them fairly painless. This is certainly a useful vade-mecum for an algebraist.

C.M. Glennie