These theorems of Zassenhaus and Huppert, together with a result of Szuzuki on strictly doubly transitive groups and a description of the Mathieu groups, form the last third of the book. The first two-thirds deal with introductory material giving the necessary tools in permutation groups, transfer theory and linear representations, as well as giving the theorems of Frobenius and Thompson on Frobenius groups. Since so many results are needed in the last part these earlier chapters make a nice introduction into methods in the theory of finite groups.

This book is to be recommended as a valuable source on Frobenius groups and multiply transitive groups, and a useful introduction to some basic tools in finite group theory.

John D. Dixon, Carleton University

A first course in abstract algebra, by Hiram Paley and Paul M. Weichsel. Holt, Rinehart, and Winston, New York, 1966. xiii + 326 pages.

This is a textbook on Modern Algebra. The first chapter is set theory. The second chapter is on number theory, and includes axioms for the integers, the euclidean algorithm, congruences, and the fundamental theorem of arithmetic.

The next chapters include the basic properties of groups and rings one expects in a book at this level. The final chapter is on advanced ring theory, including the Artin-Wedderburn Theorems for semi-simple rings and the characterization of semi-simple rings in terms of injective and projective modules.

This textbook could be used in an undergraduate honours course at Manitoba in its entirety We normally use a book whose final topic is Galois theory rather than advanced ring theory; perhaps the ring theory would be more useful. This book has been used here twice in our general course programme with omissions. The number theory chapter is a good introduction to abstract mathematics for this group of students.

N. Losey, University of Manitoba

A first course in linear algebra, by D. Zelinsky. Academic Press, New York, 1968. viii + 266 pages. U.S. $6.50.

This book is an excellent introduction to the algebra and geometry of vectors, matrices, and linear transformations. It follows closely the recommendations of CUPM. A student is slowly introduced to the concept of vector spaces, linear transformations, determinants and quadratic forms; the job is well done. Each section in the book is followed by a wealth of examples. The book is practically free of typographical errors. I strongly recommend the book for a first course in linear algebra.

B.M. Puttaswamaiah, Carleton University

Introduction to the theory of algebraic functions and numbers, by M. Eichler. Academic Press, New York and London, 1966. xiv + 324 pages. U.S. $14.50.

The book is translated from the German. Although it is called an introduction, the book is too difficult to serve this purpose suitably for, although only a basic knowledge of algebra and function theory is supposed, the proofs are very concise.

One hundred pages are devoted to the general theory underlying the theory of algebraic functions and numbers; ten pages are devoted to the special study of algebraic numbers; and two hundred pages to the study of function fields.

Much material is covered and unified. Many references are given. Indeed, the last few sections are mainly summaries of the papers quoted. The book's main value is for reference - it serves this purpose well, although it omits the description of the theta and zeta functions of algebraic number fields and covers only summarily the theory of complex multiplication.

Chapter I. A review of linear algebra in which the author develops the theory of linear divisors and the Riemann-Roch theorem for linear divisors. In an appendix the theta function is discussed.

Chapter II. The general framework of the theory. Ideals, discriminants differential Hilbert theory. A brief section on algebraic number fields.

Chapter III. Algebraic functions and differentials. The author returns to a description of classical function theory rather than continuing the methods of Chapter II. The Riemann-Roch theorem for a function field.

Chapter IV. Algebraic functions over the field of complex numbers. Riemann surfaces, elliptic functions, modular functions.

Chapter V. Correspondences between fields of algebraic functions. Applications to number theory. Correspondences of modular functions and applications to quadratic forms. In this chapter are the most interesting and deepest applications. The proofs, however, are at best very sketchy.

The book is well-translated, physically appealing; the notation clear and consistent.

A. Trojan, McGill University

Fibonacci and Lucas numbers, by Verner E. Hoggatt Jr. Houghton Mifflin Company, Boston, 1969. 92 pages.

This little book offers the reader a beautiful, and yet casual, introduction to the fascinating topic of Fibonacci and Lucas numbers. The close relationship between these two types of numbers is continually pointed out to the reader. All the proofs given are elementary in nature. The one thing this book lacks is a chapter on some recent interesting results (e.g. the determining of all the Fibonacci numbers and Lucas numbers which are perfect squares) and some unsolved conjectures.

H. London, McGill University

Studies in number theory, edited by A.V. Malyshev. Consultants Bureau, Plenum Publishing Corp., 227 W. 17th St., New York 10011, 1968. 66 pages. U.S. $12.50.

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