Título: Algebra. An Approach Via Module Theory. (Graduate Texts In Mathematics Vol. 136)

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Precio: $999.38

Editorial:

Año: 1992

Tema:

Edición: 1ª

Sinopsis

ISBN: 9780387978390

This book is designed as a text for a first-year graduate algebra course. The choice of topics is guided by the underlying theme of modules as a basic unifying concept in mathematics. Beginning with standard topics in groups and ring theory, the authors then develop basic module theory, culminating in the fundamental structure theorem for finitely generated modules over a principal ideal domain. They then treat canonical form theory in linear algebra as an application of this fundamental theorem. Module theory is also used in investigating bilinear, sesquilinear, and quadratic forms. The authors develop some multilinear algebra (Hom and tensor product) and the theory of semisimple rings and modules and apply these results in the final chapter to study group represetations by viewing a representation of a group G over a field F as an F(G)-module. The book emphasizes proofs with a maximum of insight and a minimum of computation in order to promote understanding. However, extensive material on computation (for example, computation of canonical forms) is provided.