<<非交换环初级教程>>

图书基本信息

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前言

The wonderful reception given to the first edition of this book by the mathematical community was encouraging. It gives me much pleasure to bring outnow a new edition, exactly ten years after the book first appeared. In the 1990s, two related projects have been completed. The first is the problem book for "First Course" (Lam [95]), which contains the solutions of (and commentaries on) the original 329 exercises and 71 additional ones. The second is the intended "sequel" to this book (once called "'SecondCourse"), which has now appeared under the different title "'Lectures onModules and Rings" (Lam [98]). These two other books will be useful companion volumes for this one. In the present book, occasional references aremade to "Lectures", but the former has no logical dependence on the latter. In fact, all three books can be used essentially independently. In this new edition of "'First Course", the entire text has been retyped, some proofs were rewritten, and numerous improvements in the expositionhave been included. The original chapters and sections have remained unchanged, with the exception of the addition of an Appendix (on uniserialmodules) to 20. All known typographical errors were corrected (althoughno doubt a few new ones have been introduced in the process!

). The original exercises in the first edition have been replaced by the 400 exercises in the problem book (Lam [95]), and 1 have added at least 30 more in this edition for the convenience of the reader. As before, the book should be suitable as atext for a one-semester or a full-year graduate course in noncommutative ring theory.

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内容概要

A First Course in Noncommutative Rings , an outgrowth of the author's lectures at the University of California at Berkeley , is intended as a textbook for a one-semester course in basic ring theory. The material covered includes the Wedderburn-Artin theory of semisimple rings , Jacobson's theory of the radical , representation theory of groups and algebras , prime and semiprime rings , primitive and semiprimitive rings , division rings , ordered rings , local and semilocal rings , perfect and semiperfect rings , and so forth. By aiming the level of writing at the novice rather than the connoisseur and by stressing the role of examples and motivation , the author has produced a text that is suitable not only for use in a graduate course , but also for self-study in the subject by interested graduate students. More than 400 exercises testing the understanding of the general theory in the text are included in this new edition.

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章节摘录

插图:In this beginning section, we shall review some of the basic terminology inring theory and give a good supply of examples of rings. We assume thereader is already familiar with most of the terminology discussed herethrough a good course in graduate algebra, so we shall move along at afairly brisk pace. Throughout the text, the word "ring" means a ring with an identity element I which is not necessarily commutative. The study of commutative rings constitutes the subject of commutative algebra, for which the readercan find already excellent treatments in the standard textbooks of ZariskiSamuel, Atiyah-Macdonald, and Kaplansky. In this book, instead, we shall focus on the noncammutative aspects of ring theory. Of course, we shall notexclude commutative rings from our study. In most cases, the theoremsproved in this book remain meaningful for commutative rings, but in generalthese theorems become much easier in the commutative category. The mainpoint, therefore, is to find good notions and good tools to work with in the possible absence of commutativity, in order to develop a general theory ofpossibly noncommutative rings. Most of the discussions in the text will beself-contained, so technically speaking we need not require much priorknowledge of commutative algebra. However, since much of our work is anattempt to extend results from the commutative setting to the general setting, it will pay handsomely if the reader already has a good idea of what goes onin the commutative case. To be more specific, it would be helpful if thereader has already acquired from a graduate course in algebra some acquaintance with the basic notions and foundational results of commutative algebra, for this will often supply the motivation needed for the generaltreatment of noncommutative phenomena in the text.

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