<<多维实分析（第2卷）>>

图书基本信息

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前言

This book, which is in two parts, provides an introduction to the theory of vector-valued functions on Euclidean space. We focus on four main objects of studyand in addition consider the interactions between these. Volume I is devoted todifferentiation. Differeutiable functions on Rn come first, in Chapters 1 through 3.Next, differentiable manifolds embedded in Rn are discussed, in Chapters 4 and 5. InVolume 11 we take up integration. Chapter 6 deals with the theory of n-dimensionalintegration over . Finally, in Chapters 7 and 8 lower-dimensional integration oversubmanifolds of R" is developed; particular attention is paid to vector analysis andthe the6ry of differential forms, which are treated independently from each other.Generally speaking, the emphasis is on geometric aspects of analysis rather than onmatters belonging to functional analysis.In presenting the material we have been intentionally concrete, aiming at athorough understanding of Euclidean space. Once this case is properly understood,it becomes easier to move on to abstract metric spaces or manifolds and to infinite-dimensional function spaces. If the general theory is introduced too soon, the readermight get confused about its relevance and lose motivation. Yet we have tried toorganize the book as economically as we could, for instance by making use of linearalgebra whenever possible and minimizing the number of ~ arguments, alwayswithout sacrificing rigor. In many cases, a fresh look at old problems, by ourselvesand others, led to results or proofs in a form not found in current analysis textbooks.Quite often, similar techniques apply in different parts of mathematics; on the otherhand, different techniques may be used to prove the same result. We offer ampleillustration of these two principles, in the theory as well as the exercises.A working knowledge of analysis in one real variable and linear algebra is aprerequisite; furthermore, familiarity with differentiable mappings and submani-folds of Rn, as discussed in volume I, for instance. The main parts of the theorycan be used as a text for an introductory course of one semester, as we have beendoing for second-year students in Utrecht during the last decade. Sections at theend of many chapters usually contain applications that can be omitted in case oftime constraints.This volume contains 234 exercises, out of a total of 568, offering variationsand applications of the main theory, as well as special cases and openings towardapplications beyond the scope of this book. Next to routine exercises we triedalso to include exercises that represent some mathematical idea. The exercises areindependent from each other unless indicated otherwise.

内容概要

《多维实分析(第2卷)(英文版)》讲述了：In presenting the material we have been intentionally concrete, aiming at athorough understanding of Euclidean space. Once this case is properly understood,it becomes easier to move on to abstract metric spaces or manifolds and to infinite-dimensional function spaces. If the general theory is introduced too soon, the readermight get confused about its relevance and lose motivation. Yet we have tried toorganize the book as economically as we could, for instance by making use of linearalgebra whenever possible and minimizing the number of ~ arguments, alwayswithout sacrificing rigor. In many cases, a fresh look at old problems, by ourselvesand others, led to results or proofs in a form not found in current analysis textbooks.Quite often, similar techniques apply in different parts of mathematics; on the otherhand, different techniques may be used to prove the same result. We offer ampleillustration of these two principles, in the theory as well as the exercises.

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