

<<微积分和数学分析引论 (第1卷)>>

图书基本信息

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## 内容概要

During the latter part of the seventeenth century the new mathematical analysis emerged as the dominating force in mathematics. It is characterized by the amazingly successful operation with infinite processes or limits. Two of these processes, differentiation and integration, became the core of the systematic Differential and Integral Calculus, often simply called "Calculus," basic for all of analysis. The importance of the new discoveries and methods was immediately felt and caused profound intellectual excitement. Yet, to gain mastery of the powerful art appeared at first a formidable task, for the available publications were scanty, unsystematic, and often lacking in clarity. Thus, it was fortunate indeed for mathematics and science in general that leaders in the new movement soon recognized the vital need for writing textbooks aimed at making the subject accessible to a public much larger than the very small intellectual elite of the early days. One of the greatest mathematicians of modern times, Leonard Euler, established in introductory books a firm tradition and these books of the eighteenth century have remained sources of inspiration until today, even though much progress has been made in the clarification and simplification of the material. After Euler, one author after the other adhered to the separation of differential calculus from integral calculus, thereby obscuring a keypoint, the reciprocity between differentiation and integration. Only in 1927 when the first edition of R. Courant's German *Vorlesungen über Differential und Integrirechnung*, appeared in the Springer-Verlag was this separation eliminated and the calculus presented as a unified subject.

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### 编辑推荐

本书在内容以及形式上有如下三个特点：一是引领读者直达本学科的核心内容；二是注重应用，指导读者灵活运用所掌握的知识；三是突出了直觉思维在数学学习中的作用。

作者不掩饰难点以使得该学科貌似简单，而是通过揭示概念之间的内在联系和直观背景努力帮助那些对这门学科真正感兴趣的读者。

本书第一章主要围绕着一元函数展开讨论，二、三、四章分别介绍了微积分的基本概念、运算及其在物理和几何中的应用，随后讲述了泰勒展开式、数值方法、数项级数、函数项级数、三角级数，最后介绍了一些与振动有关的类型简单的微分方程。

本书各章均提供了大量的例题和习题，其中一部分有相当的难度，但绝大部分是对内容的补充。

另外，本书附有一本专门的习题册，并且给出了习题的提示与解答。

本书适合于多种学科界的读者，如数学工作者、科学工作者、工程技术人员等。

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