

<<微积分学(CALCULUS with)>>

图书基本信息

书名：<<微积分学(CALCULUS with Space Analytic Geometry)>>

13位ISBN编号：9787561814604

10位ISBN编号：7561814607

出版时间：2001-8-1

出版时间：天津大学出版社

作者：张凤玲,张玉环,姚妙新

页数：253

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

## 前言

科学技术的高速发展，特别是互联网的使用，使得知识信息可以跨越国界，实现全球共享，这就要求作为新科技人才培养基地的高等院校，其课程的内容及形式都应有新的发展。

本书是根据国内高等学校对数学教学的要求，并参考国外一些优秀的微积分教程而编写的一本英文高等数学教材。

在内容的深度及广度方面，它包括了一元函数微积分学、多元函数微积分学、级数及空间解析几何的有关内容，并给出了相关概念在几何、物理及经济方面的应用实例。

本书可以作为高等学校科技英语专业的高等数学课程教科书，也可以作为文科类专业采用英文教学的高等数学课程教材。

由于本书包括了微积分的所有基本内容，它也可以作为高等学校工科各专业高年级学生及工程技术人员学习科技英语的一本辅助教材，同时可以作为外国留学生学习中文版高等数学课程相关内容的一本对照参考书。

本书由张凤玲、姚妙新主编，由张凤玲、姚妙新、张玉环编写。

全书共11章。

第1~7章是一元函数微积分的内容，第8章是有关级数的内容，第9章是有关空间解析几何的内容，第10~11章是多元函数微积分的内容。

每章后面都配有习题，书后附有答案及部分习题的提示。

本书作为天津大学教学改革“九五”重点教材，得到了天津大学教务处、出版社、数学系的大力支持，并在编写排版过程中得到了数学系喻文唤、毛云英、杨正方、杨玉芳老师的帮助，在此表示衷心的感谢。

## <<微积分学(CALCULUS with)>>

### 内容概要

《微积分学（英文）》是根据国内高等学校对数学教学的要求，并参考国外一些优秀的微积分教程而编写的一本英文高等数学教材。

在内容的深度及广度方面，它包括了一元函数微积分学、多元函数微积分学、级数及空间解析几何的有关内容，并给出了相关概念在几何、物理及经济方面的应用实例。

《微积分学（英文）》可以作为高等学校科技英语专业的高等数学课程教科书，也可以作为文科类专业采用英文教学的高等数学课程教材。

## 书籍目录

1 Functions  
 1.1 Sets  
 1.1.1 Definition of Set  
 1.1.2 Operations upon Sets  
 1.1.3 The Set of Real Numbers  
 1.2 Functions  
 1.2.1 Definition  
 1.2.2 Some Properties of Functions  
 1.3 Composite Functions and Inverse Functions  
 1.3.1 Composite Functions  
 1.3.2 Inverse Functions  
 1.4 Elementary Functions  
 1.4.1 Constant functions  
 1.4.2 Power functions  
 1.4.3 Exponential functions  
 1.4.4 Logarithmic functions  
 1.4.5 Trigonometric functions  
 1.4.6 Anti-trigonometric functions  
 1.5 Exercises  
 2 Limits and Continuity  
 2.1 Limits of Sequences  
 2.1.1 Definition  
 2.2 Limits of Functions  
 2.2.1 A Limit of a Function  $f(x)$  as  $x$  Tends to a Real Number  $x_0$   
 2.2.2 Limits Involving Infinity  
 2.3 Techniques for Finding Limits  
 2.4 Continuous Functions  
 2.5 Exercises  
 3 The Derivative  
 3.1 Tangent lines and Rates of Change  
 3.2 Definition of Derivative  
 3.3 Differentiation Formulas  
 3.4 Derivatives of Logarithmic Functions  
 3.5 Derivatives of Trigonometric Functions  
 3.6 The Chain Rule  
 3.7 Derivatives of Inverse Functions and Implicit Differentiation  
 3.8 Higher Derivative  
 3.9 Differentials and Linear Approximations  
 3.9.1 Differentials  
 3.9.2 Linear Approximations  
 3.10 Exercises  
 4 Applications of Derivative  
 4.1 The Mean Value Theorem  
 4.2 Indeterminate Forms and L'HOSPITAL'S Rule  
 4.2.1 The Forms  
 4.2.2 The Forms  
 4.3 Monotonic Functions  
 4.4 Concavity and Points of Inflection  
 4.5 Extrema of Functions  
 4.6 Applications to Economics  
 4.7 Exercises  
 5 Indefinite Integrals  
 5.1 Antiderivatives and the Indefinite Integral  
 5.2 Substitution Rules  
 5.3 Integration by Parts  
 5.4 Exercises  
 6 Definite Integrals  
 6.1 Area and the Definite Integral  
 6.2 Properties of the Definite Integral  
 6.3 The Fundamental Theorem of Calculus  
 6.4 Techniques of Integration  
 6.4.1 Formula for integration by substitution  
 6.4.2 Formula for integration by parts  
 6.5 Improper Integrals  
 6.5.1 Type 1: Infinite Intervals  
 6.5.2 Type 2: Discontinuous Integrand  
 6.6 Exercises  
 7 Applications of Definite Integrals  
 7.1 Area between Curves  
 7.2 Volume  
 7.3 Arc Length  
 7.4 Area of a Surface of Revolution  
 7.5 Work  
 7.6 Applications in Business and Economics  
 7.6.1 Continuous Income Stream  
 7.6.2 Consumers' and Producers Surplus  
 7.7 Exercises  
 8 Series  
 8.1 Numerical Series  
 8.1.1 Fundamental Concepts  
 8.1.2 Elementary Properties  
 8.1.3 Infinite Series of Nonnegative Terms  
 8.1.4 Alternating Series  
 8.1.5 Absolute and Conditional Convergence  
 8.2 Functional Series  
 8.2.1 Power Series  
 8.2.2 Properties of Power Series  
 8.3 Taylor Series  
 8.4 Exercises  
 9 Vector Algebra and Space Analytic Geometry  
 9.1 Rectangular Coordinates in Space  
 9.2 Vector Algebra  
 9.2.1 Operations of Vectors  
 9.2.2 The Coordinates of a Vector  
 9.2.3 The Scalar Product  
 9.2.4 The Vector Product  
 9.3 The Planes and Lines in Space  
 9.3.1 The Point-Normal Form Equations of a Plane  
 9.3.2 Distance from a Point to a Plane  
 9.3.3 The Angle between Two Planes  
 9.3.4 The General Equation of a Line in Space  
 9.3.5 Equations of a Line  
 9.3.6 The Angle between Two Lines  
 9.4 Equations for a Surface or a Curve  
 9.4.1 The Equation for a Sphere  
 9.4.2 The Equation of a Cylindrical Surface with Generators Paralleling to a Coordinate Axis  
 9.4.3 Equation for the Intersection of Two Curved Surfaces  
 9.4.4 The Parametric Equation of a Space Curve  
 9.4.5 Equation for the Projecting Curve on a Coordinate Plane of a Space Curve  
 9.5 Surfaces of Revolution  
 9.6 Quadratic Surfaces  
 9.6.1 Ellipsoids  
 9.6.2 Hyperboloids of One Sheet  
 9.6.3 Hyperboloids of Two Sheets  
 9.6.4 Quadratic Cones  
 9.6.5 Paraboloids  
 9.6.6 Quadratic Cylinders  
 9.7 Exercises  
 10 Functions of Several Variables  
 10.1 Fundamental Concepts  
 10.2 Limits and Continuity  
 10.3 Partial Derivatives  
 10.4 The Chain Rule  
 10.5 Approximation and Total Differential  
 10.6 Applications of Partial Derivatives  
 10.6.1 Geometric Application  
 10.6.2 Extreme Values of Functions of Two Variables  
 10.7 Exercises  
 11 Multiple Integrals  
 11.1 Double Integrals  
 11.2 Properties of Double Integral  
 11.3 Evaluation of Double Integrals  
 11.4 Triple Integrals  
 11.4.1 The Mass of an Object of Nonhomogeneous Density  
 11.4.2 The Definition of Triple Integral  
 11.4.3 Evaluation of Triple Integrals in Rectangular Coordinates  
 11.5 Exercises

章节摘录

插图：

编辑推荐

《微积分学(英文)》由天津大学出版社出版。

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>