

<<多元微积分>>

图书基本信息

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内容概要

《多元微积分(第3版)》是全面, 知识体系新颖的多变量微积分教程。旨在解决广大多变量微积分学者遇到的新老问题, 包内包括: (第一部分) 基础资料: 向量; 向量微分; 多变量函数; 链式法则和梯度; (第二部分) 最大值, 最小值和泰勒公式: 最大值和最小值; 高阶导数; (第三部分) 曲线积分和双积分: 势函数; 曲线积分; 双积分; 格林定理; (第四部分) 三重积分和曲面积分: 三重积分; 曲面积分; (第五部分) 映射、反映射和变量变换公式: 矩阵; 线性映射; 行列式; 多变量函数的应用; 变量变换公式; 附录: 傅里叶级数。

读者对象: 数学专业的本科生、研究生和相关专业的数学工作者。

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书籍目录

part one basic material

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4. the norm of a vector
5. parametric lines
6. planes
7. the cross product

chapter ii differentiation of vectors

1. derivative
2. length of curves

chapter iii functions of several variables

1. graphs and level curves
2. partial derivatives
3. differentiability and gradient
4. repeated partial derivatives

chapter iv the chain rule and the gradient

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2. tangent plane
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4. functions depending only on the distance from the origin
5. the law of conservation of energy
6. further technique in partial differentiation

part two maxima, minima, and taylor's formula

chapter v maximum and minimum

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2. boundary points
3. lagrange multipliers

chapter vi higher derivatives

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 2. the quadratic term at critical points
 3. algebraic study of a quadratic form
 4. partial differential operators
 5. the general expression for taylor's formula
- appendix. taylor's formula in one variable

note. chapter ix on double integrals is self contained, and could

be covered here.

part three curve integrals and double integrals

chapter vii potential functions

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2. local existence of potential functions
3. an important special vector field
4. differentiating under the integral
5. proof of the local existence theorem

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function

4. dependence of the integral on the path

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chapter x green's theorem

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3. center of mass

chapter xii surface integrals

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part five mappings, inverse mappings, and change of variables

formula

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2. multiplication of matrices

chapter xiv linear mappings

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2. linear mappings
3. geometric applications
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2. determinants of order 3
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formula

5. change of variables formula in three dimensions

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2. computation of fourier series

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