

<<后现代分析>>

图书基本信息

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内容概要

What is the title of this book intended to signify, what connotations is the adjective "Postmodern" meant to carry? A potential reader will surely pose this question. To answer it, I should describe what distinguishes the ap to analysis presented here from what has by its protagonists been called "Modern Analysis". "Modern Analysis" as represented in the works of the Bourbaki group or in the textbooks by Jean Dieudonn is characterized by its systematic and axiomatic treatment and by its drive towards a high level of abstraction. Given the tendency of many prior treatises on analysis to degenerate into a collection of rather unconnected tricks to solve special problems, this definitely represented a healthy achievement. In any case, for the development of a consistent and powerful mathematical theory, it seems to be necessary to concentrate solely on the internal problems and structures and to neglect the relations to other fields of scientific, even of mathematical study for a certain while. Almost complete isolation may be required to reach the level of intellectual elegance and perfection that only a good mathematic. al theory can acquire. However, once this level has been reached, it can be useful to open one's eyes again to the inspiration coming from concrete external problems. The axiomatic approach started by Hilbert and taken up and perfected by the Bourbaki group has led to some of the most important mathematical contributions of our century, most notably in the area of algebraic geometry. This development was definitely beneficial for many areas of mathematics, but for other fields this was not true to the same extent. In geometry, the powerful tool of visual imagination was somewhat neglected, and global nonlinear phenomena connected with curvature could not always be addressed adequately. In analysis, likewise, perhaps too much emphasis laid on the linear theory, while the genuinely nonlinear problems were found to be too diverse to be subjected to a systematic and encompassing theory. This effect was particularly noticable in the field of partial differential equations. This branch of mathematics is one of those that have experienced the most active and mutually stimulating interaction with the sciences, and those equations that arise in scientific applications typically exhibit some genuinely nonlinear structure because of self-interactions and other effects.

书籍目录

chapter i. calculus for functions of one variable 0. prerequisites properties of the real numbers, limits and convergence of sequences of real numbers, exponential function and logarithm. exercises 1. limits and continuity of functions definitions of continuity, uniform continuity, properties of continuous functions, intermediate value theorem, hsllder and lipschitz continuity. exercises 2. differentiability definitions of differentiability, differentiation rules, differentiable functions are continuous, higher order derivatives. exercises 3. characteristic properties of differentiable functions. differential equations characterization of local extrema by the vanishing of the derivative, mean value theorems, the differential equation $f' = rf$, uniqueness of solutions of differential equations, qualitative behavior of solutions of differential equations and inequalities, characterization of local maxima and minima via second derivatives, taylor expansion. exercises 4. the banach fixed point theorem. the concept of banach space banach fixed point theorem, definition of norm, metric, cauchy sequence, completeness. exercises 5. uniform convergence. interchangeability of limiting processes. examples of banach spaces. the theorem of arzela-ascoli convergence of sequences of functions, power series, convergence theorems, uniformly convergent sequences, norms on function spaces, theorem of arzela-ascoli on the uniform convergence of sequences of uniformly bounded and equicontinuous functions. exercises 6. integrals and ordinary differential equations primitives, riemann integral, integration rules, integration by parts, chain rule, mean value theorem, integral and area, odes, theorem of picard-lindelsf on the local existence and uniqueness of solutions of odes with a lipschitz condition. exercises chapter ii. topological concepts .7. metric spaces: continuity, topological notions, compact sets definition of a metric space, open, closed, convex, connected, compa sets, sequential compactness, continuous mappings between metric space bounded linear operators, equivalence of norms in \mathbb{R}^d , definition of a topological space. exercises chapter iii. calculus in euclidean and banach spaces 8. differentiation in banach spaces definition of differentiability of mappings between banach spaces, differentiation rules, higher derivatives, taylor expansion. exercises 9. differential calculus in \mathbb{R}^d a. scalar valued functions gradient, partial derivatives, hessian, local extrema, laplace operator, partial differential equations b. vector valued functions jacobi matrix, vector fields, divergence, rotation. exercises 10. the implicit function theorem. applications implicit and inverse function theorems, extrema with constraints, lagrange multipliers. exercises 11. curves in \mathbb{R}^d . systems of odes regular and singular curves, length, rectifiability, arcs, jordan arc theorem, higher order ode as systems of odes. exercises chapter iv. the lebesgue integral 12. preparations. semicontinuous functions theorem of dini, upper and lower semicontinuous functions, the characteristic function of a set. exercises 13. the lebesgue integral for semicontinuous functions. the volume of compact sets the integral of continuous and semicontinuous functions, theorem of fubini, volume, integrals of rotationally symmetric functions and other examples. exercises 14. lebesgue integrable functions and sets upper and lower integral, lebesgue integral, approximation of lebesgue integrals, integrability of sets. exercises 15. null functions and null sets. the theorem of fubini null functions, null sets, cantor set, equivalence c]aes of integrable functions, the space \mathbb{L}^1 , fubini's theorem for integrable functions. exercises 16. the convergence theorems of lebesgue integration theory monotone convergence theorem of b. levi, fatou's lemma, dominated convergence theorem of h. lebesgue, parameter dependent integrals, differentiation under the integral sign. exercises 17. measurable functions and sets. jensen's inequality. the theorem of egorov measurable functions and their properties, measurable sets, measurable functions as limits of simple functions, the composition of a measurable function with a continuous function is measurable, jensen's inequality for convex functions, theorem of egorov on almost uniform convergence of measurable functions, the abstract concept of a measure. exercises 18. the transformation formula transformation of multiple integrals under diffeomorphisms, integrals in polar coordinates. exercises chapter v. L^p and sobolev spaces 19. the L^p -spaces L^p -functions, hsllder's inequality, minkowski's inequality, completeness of L^p -spaces, convolutions with local kernels, lebesgue points, approximation of L^p -functions by smooth functions through mollification, test functions, covering theorems, partitions of unity. exercises 20. integration by parts. weak derivatives. sobolev spaces weak derivatives defined by an integration by parts formula, sobolev functions have weak derivatives in L^p -spaces, calculus for sobolev functions, sobolev embedding theorem on the continuity of

sobolev functions whose weak derivatives are integrable to a sufficiently high power, poincare inequality, compactness theorem of rellich-kondrachov on the L^p -convergence of sequences with bounded sobolev norm. exercises chapter vi. introduction to the calculus of variations and elliptic partial differential equations 21. hilbert spaces. weak convergence definition and properties of hilbert spaces, riesz representation theorem, weak convergence, weak compactness of bounded sequences, banach-saks lemma on the convergence of convex combinations of bounded sequences. exercises 22. variational principles and partial differential equations dirichlet's principle, weakly harmonic functions, dirichlet problem, euler-lagrange equations, variational problems, weak lower semicontinuity of variational integrals with convex integrands, examples from physics and continuum mechanics, hamilton's principle, equilibrium states, stability, the laplace operator in polar coordinates. exercises 23. regularity of weak solutions smoothness of weakly harmonic functions and of weak solutions of general elliptic pdes, boundary regularity, classical solutions. exercises 24. the maximum principle weak and strong maximum principle for solutions of elliptic pdes, boundary point lemma of e. hopf, gradient estimates, theorem of liouville. exercises 25. the eigenvalue problem for the laplace operator eigenfunctions of the laplace operator form a complete orthonormal basis of L^2 as an application of the rellich compactness theorem. exercises index

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