



METADATA

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Abstract

The topic of the book is the development of classical theory in Mathematical Analysis concerning real and vector functions of several real variables. Its aim is to introduce and rigorously mathematically establish the relevant classical concepts, namely the continuity and differentiability of functions of multiple variables, the definition of the multiple integral according to Riemann, line and surface integrals of scalar and vector functions, and the proof of the classical theorems of multivariable integral calculus, specifically Green's, Stokes', and Gauss' theorems. The intended audience is primarily Mathematics students, but it also aspires to serve as a reference work on the discussed topics for any other interested party, be they Mathematicians, Physical Scientists, or Engineers, whether they are

students, instructors, or researchers. The material is part of the mandatory curriculum for students in mathematics departments, schools of physical sciences, and engineering schools, and it presupposes knowledge of the related theory concerning real functions of a single real variable. It also forms the basis for courses in Differential Geometry, Partial Differential Equations, and Applied Mathematics, as well as the majority of theoretical courses in Physical or Engineering Sciences. The book can also be used as a reference work for more theoretical topics, and thus it can be useful for teaching at a more applied level, focusing more on application and interpretation of the relevant concepts and theorems from a geometric and physical perspective with numerous examples, exercises, and applications.

