Theory of Functions of a Real Variable (Paperback)

By I. P. Natanson

Dover Publications Inc., United States, 2016. Paperback. Condition: New. First Edition, First ed.. Language: English . Brand New Book. Originally published in two volumes, this long out-of-print work by a prominent Soviet mathematician presents a thorough examination of the theory of functions of a real variable. Intended for advanced undergraduates and graduate students of mathematics, the treatment offers a clear account of integration theory and a practical introduction to functional analysis. Prerequisites include a background in the foundations of elementary analysis and some familiarity with the theory of irrational numbers, the theory of limits, continuous functions, Riemann integrals, and infinite series. Volume I covers infinite and point sets, measurable sets and functions, the Lebesgue integral of a bounded function, square-summable functions, functions of finite variations, the Stieltjes integral, absolutely contiguous functions, and the indefinite Lebesgue integral. Volume II addresses singular integrals, trigonometric series, convex functions, point sets in two-dimensional space, measurable functions of several variables and their integration, set functions and their applications in the theory of integration, transfinite numbers, the Baire classification, certain generalizations of the Lebesgue integral, and some ideas from functional analysis. Many chapters feature challenging exercises.

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