1. Record Nr. UNINA9911006808303321 Autore Shilov Georgi E Titolo Elementary Real and Complex Analysis Newburyport,: Dover Publications, 2012 Pubbl/distr/stampa **ISBN** 0-486-13500-4 1-62198-656-X Edizione [1st ed.] Descrizione fisica 1 online resource (943 p.) **Dover Books on Mathematics** Collana Disciplina 515 Soggetti Mathematical analysis **Engineering & Applied Sciences Applied Mathematics** Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di contenuto Cover; Title Page; Copyright Page; Contents; Preface; 1 Real Numbers; 1.1. Set-Theoretic Preliminaries; 1.2. Axioms for the Real Number System: 1.3. Consequences of the Addition Axioms: 1.4. Consequences of the Multiplication Axioms; 1.5. Consequences of the Order Axioms; 1.6. Consequences of the Least Upper Bound Axiom; 1.7. The Principle of Archimedes and Its Consequences; 1.8. The Principle of Nested Intervals; 1.9. The Extended Real Number System; Problems; 2 Sets; 2.1. Operations on Sets; 2.2. Equivalence of Sets; 2.3. Countable Sets; 2.4. Uncountable Sets: 2.5. Mathematical Structures 2.6. n-Dimensional Space2.7. Complex Numbers; 2.8. Functions and Graphs; Problems; 3 Metric Spaces; 3.1. Definitions and Examples; 3.2. Open Sets; 3.3. Convergent Sequences and Homeomorphisms; 3.4. Limit Points; 3.5. Closed Sets; 3.6. Dense Sets and Closures; 3.7. Complete Metric Spaces; 3.8. Completion of a Metric Space; 3.9. Compactness: Problems: 4 Limits: 4.1. Basic Concepts: 4.2. Some General Theorems; 4.3. Limits of Numerical Functions; 4.4. Upper and Lower Limits; 4.5. Nondecreasing and Nonincreasing Functions; 4.6.

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11.1. Improper Integrals of the First Kind

Sommario/riassunto

In this book the renowned Russian mathematician Georgi E. Shilov brings his unique perspective to real and complex analysis, an area of perennial interest in mathematics. Although there are many books available on the topic, the present work is specially designed for undergraduates in mathematics, science and engineering. A high level of mathematical sophistication is not required. The book begins with a systematic study of real numbers, understood to be a set of objects satisfying certain definite axioms. The concepts of a mathematical structure and an isomorphism are introduced in Chapter 2,