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Titolo	A Circle-Line Study of Mathematical Analysis [[electronic resource] /] / by Simone Secchi
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Nota di contenuto	Part I First half of the journey -- 1 An appetizer of propositional logic -- 2 Sets, relations, functions in a naïve way -- 3 Numbers -- 4 Elementary cardinality -- 5 Distance, topology and sequences on the set of real numbers -- 6 Series -- 7 Limits: from sequences to functions of a real variable -- 8 Continuous functions of a real variable -- 9 Derivatives and differentiability- 10 Riemann's integral -- 11 Elementary functions -- Part II Second half of the journey -- 12 Return to Set Theory -- 13 Neighbors again: topological spaces -- 14 Differentiating again: linearization in normed spaces -- 15 A functional approach to Lebesgue integration theory -- 16 Measures before integrals.
Sommario/riassunto	The book addresses the rigorous foundations of mathematical analysis. The first part presents a complete discussion of the fundamental topics: a review of naive set theory, the structure of real numbers, the topology of R, sequences, series, limits, differentiation and integration according to Riemann. The second part provides a more mature return to these topics: a possible axiomatization of set theory, an introduction to general topology with a particular attention to convergence in

abstract spaces, a construction of the abstract Lebesgue integral in the spirit of Daniell, and the discussion of differentiation in normed linear spaces. The book can be used for graduate courses in real and abstract analysis and can also be useful as a self-study for students who begin a Ph.D. program in Analysis. The first part of the book may also be suggested as a second reading for undergraduate students with a strong interest in mathematical analysis.