

1. Record Nr.	UNINA9910139574403321
Autore	Stahl Saul
Titolo	Real analysis [[electronic resource]] : a historical approach / / Saul Stahl
Pubbl/distr/stampa	Hoboken, N.J., : Wiley, 2011
ISBN	1-283-28114-7 9786613281142 1-118-09685-1 1-118-09686-X 1-118-09684-3
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (316 p.)
Collana	Pure and applied mathematics
Classificazione	MAT005000
Disciplina	515.8 515/.8
Soggetti	Mathematical analysis Functions of real variables Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Real Analysis: A Historical Approach; Contents; Preface to the Second Edition; Acknowledgments; 1 Archimedes and the Parabola; 1.1 The Area of the Parabolic Segment; 1.2 The Geometry of the Parabola; 2 Fermat, Differentiation, and Integration; 2.1 Fermat's Calculus; 3 Newton's Calculus (Part 1); 3.1 The Fractional Binomial Theorem; 3.2 Areas and Infinite Series; 3.3 Newton's Proofs; 4 Newton's Calculus (Part 2); 4.1 The Solution of Differential Equations; 4.2 The Solution of Algebraic Equations; Chapter Appendix: Mathematica Implementations of Newton's Algorithm; 5 Euler 5.1 Trigonometric Series6 The Real Numbers; 6.1 An Informal Introduction; 6.2 Ordered Fields; 6.3 Completeness and Irrational Numbers; 6.4 The Euclidean Process; 6.5 Functions; 7 Sequences and Their Limits; 7.1 The Definitions; 7.2 Limit Theorems; 8 The Cauchy Property; 8.1 Limits of Monotone Sequences; 8.2 The Cauchy Property; 9 The Convergence of Infinite Series; 9.1 Stock Series; 9.2 Series of Positive Terms; 9.3 Series of Arbitrary Terms; 9.4 The Most Celebrated

Problem; 10 Series of Functions; 10.1 Power Series; 10.2 Trigonometric Series; 11 Continuity; 11.1 An Informal Introduction 11.2 The Limit of a Function 11.3 Continuity; 11.4 Properties of Continuous Functions; 12 Differentiability; 12.1 An Informal Introduction to Differentiation; 12.2 The Derivative; 12.3 The Consequences of Differentiability; 12.4 Integrability; 13 Uniform Convergence; 13.1 Uniform and Nonuniform, Convergence; 13.2 Consequences of Uniform Convergence; 14 The Vindication; 14.1 Trigonometric Series; 14.2 Power Series; 15 The Riemann Integral; 15.1 Continuity Revisited; 15.2 Lower and Upper Sums; 15.3 Integrability; Appendix A: Excerpts from "Quadrature of the Parabola" by Archimedes Appendix B: On a Method for the Evaluation of Maxima and Minima by Pierre de Fermat Appendix C: From a Letter to Henry Oldenburg on the Binomial Series (June 13, 1676) by Isaac Newton; Appendix D: From a Letter to Henry Oldenburg on the Binomial Series (October 24, 1676) by Isaac Newton; Appendix E: Excerpts from "Of Analysis by Equations of an Infinite Number of Terms" by Isaac Newton; Appendix F: Excerpts from "Subsiduum Calculi Sinuum" by Leonhard Euler; Solutions to Selected Exercises; Bibliography; Index

Sommario/riassunto

"Combining historical coverage with key introductory fundamentals, Real Analysis: A Historical Approach, Second Edition helps readers easily make the transition from concrete to abstract ideas when conducting analysis. Based on reviewer and user feedback, this edition features a new chapter on the Riemann integral including the subject of uniform continuity, as well as a discussion of epsilon-delta convergence and a section that details the modern preference for convergence of sequences over convergence of series. Both mathematics and secondary education majors will appreciate the focus on mathematicians who developed key concepts and the difficulties they faced"--