

1. Record Nr.	UNINA9910300246203321
Autore	Jarnicki Marek
Titolo	Continuous Nowhere Differentiable Functions : The Monsters of Analysis // by Marek Jarnicki, Peter Pflug
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-12670-9
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (299 p.)
Collana	Springer Monographs in Mathematics, , 2196-9922
Disciplina	515.222
Soggetti	Functions of real variables Fourier analysis Functional analysis Real Functions Fourier Analysis Functional Analysis
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	Preface -- Preliminaries -- Weierstrass type functions I -- Takagi-van der Waerden type functions I -- Bolzano type functions I -- Other examples -- Baire category approach -- Weierstrass type functions II -- Takagi-van der Waerden type functions II -- Bolzano type functions II -- Besicovitch-Morse Functions -- Linear spaces of nowhere differentiable functions -- Riemann function.
Sommario/riassunto	This book covers the construction, analysis, and theory of continuous nowhere differentiable functions, comprehensively and accessibly. After illuminating the significance of the subject through an overview of its history, the reader is introduced to the sophisticated toolkit of ideas and tricks used to study the explicit continuous nowhere differentiable functions of Weierstrass, Takagi-van der Waerden, Bolzano, and others. Modern tools of functional analysis, measure theory, and Fourier analysis are applied to examine the generic nature of continuous nowhere differentiable functions, as well as linear structures within the (nonlinear) space of continuous nowhere differentiable functions. To round out the presentation, advanced techniques from several areas of

mathematics are brought together to give a state-of-the-art analysis of Riemann's continuous, and purportedly nowhere differentiable, function. For the reader's benefit, claims requiring elaboration, and open problems, are clearly indicated. An appendix conveniently provides background material from analysis and number theory, and comprehensive indices of symbols, problems, and figures enhance the book's utility as a reference work. Students and researchers of analysis will value this unique book as a self-contained guide to the subject and its methods.

---