1.	Record Nr.	UNINA9910254090903321
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	Titolo	Discrete Calculus : Methods for Counting / / by Carlo Mariconda, Alberto Tonolo
	Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
	ISBN	3-319-03038-8
	Edizione	[1st ed. 2016.]
	Descrizione fisica	1 online resource (XXI, 659 p. 66 illus.)
	Collana	La Matematica per il 3+2, , 2038-5722 ; ; 103
	Disciplina	511.6
	Soggetti	Combinatorial analysis Approximation theory Combinatorics Approximations and Expansions
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Includes index.
	Nota di contenuto	1 Let's Learn to Count -- 2 Counting Sequences and Collections -- 3 Occupancy Constraints -- 4 Inclusion/Exclusion -- 5 Stirling Numbers and Eulerian Numbers -- 6 Manipulation of Sums -- 7 Formal Power Series -- 8 Generating Formal Series and Applications -- 9 Recurrence Relations -- 10 Linear Recurrence Relations -- 11 Symbolic Calculus -- 12 The Euler-Maclaurin Formulas of Order 1 and 2 -- 13 The Euler-Maclaurin Formula of Arbitrary Order -- 14 Cauchy and Riemann Sums, Factorials, Ramanujan Numbers and their Approximations -- 15 Tables and Formulas -- 16 Appendix A.
	Sommario/riassunto	This book provides an introduction to combinatorics, finite calculus, formal series, recurrences, and approximations of sums. Readers will find not only coverage of the basic elements of the subjects but also deep insights into a range of less common topics rarely considered within a single book, such as counting with occupancy constraints, a clear distinction between algebraic and analytical properties of formal power series, an introduction to discrete dynamical systems with a thorough description of Sarkovskii's theorem, symbolic calculus, and a complete description of the Euler-Maclaurin formulas and their applications. Although several books touch on one or more of these aspects, precious few cover all of them. The authors, both pure

mathematicians, have attempted to develop methods that will allow the student to formulate a given problem in a precise mathematical framework. The aim is to equip readers with a sound strategy for classifying and solving problems by pursuing a mathematically rigorous yet user-friendly approach. This is particularly useful in combinatorics, a field where, all too often, exercises are solved by means of ad hoc tricks. The book contains more than 400 examples and about 300 problems, and the reader will be able to find the proof of every result. To further assist students and teachers, important matters and comments are highlighted, and parts that can be omitted, at least during a first and perhaps second reading, are identified.