1.

Record Nr.	UNINA9910300257203321
Autore	Roman Steven
Titolo	An Introduction to Catalan Numbers / / by Steven Roman
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Birkhäuser, , 2015
ISBN	3-319-22144-2
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (XII, 121 p. 44 illus.)
Collana	Compact Textbooks in Mathematics, , 2296-455X
Disciplina	511.6
Soggetti	Discrete mathematics
	Graph theory
	Sequences (Mathematics)
	Computer science - Mathematics
	Discrete Mathematics
	Graph Theory
	Sequences, Series, Summability
	Mathematical Applications in Computer Science
	Discrete Mathematics in Computer Science
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Introduction -- Dyck Words -- The Catalan Numbers -- Catalan Numbers and Paths -- Catalan Numbers and Trees -- Catalan Numbers and Geometric Widgits -- Catalan Numbers and Algebraic Widgits -- Catalan Numbers and Interval Structures -- Catalan Numbers and Partitions -- Catalan Numbers and Permutations -- Catalan Numbers and Semiorders -- Exercises -- Solutions and Hints -- Appendix A: A Brief Introduction to Partially Ordered Sets -- Appendix B: A Brief Introduction to Graphs and Trees -- Index.
Sommario/riassunto	This textbook provides an introduction to the Catalan numbers and their remarkable properties, along with their various applications in combinatorics. Intended to be accessible to students new to the subject, the book begins with more elementary topics before progressing to more mathematically sophisticated topics. Each chapter focuses on a specific combinatorial object counted by these numbers,

including paths, trees, tilings of a staircase, null sums in Zn+1, interval structures, partitions, permutations, semiorders, and more. Exercises are included at the end of book, along with hints and solutions, to help students obtain a better grasp of the material. The text is ideal for undergraduate students studying combinatorics, but will also appeal to anyone with a mathematical background who has an interest in learning about the Catalan numbers. "Roman does an admirable job of providing an introduction to Catalan numbers of a different nature from the previous ones. He has made an excellent choice of topics in order to convey the flavor of Catalan combinatorics. [Readers] will acquire a good feeling for why so many mathematicians are enthralled by the remarkable ubiquity and elegance of Catalan numbers." - From the foreword by Richard Stanley.