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Nota di contenuto	Chapter 1- Arrangements, Permutations, and Combinations -- Chapter 2- Binomial and Multinomial Theorems -- Chapter 3- Inclusion-Exclusion Principle -- Chapter 4- Generating Functions -- Chapter 5- Partitions -- Chapter 6- Burnside's Lemma -- Chapter 7- Graph Theory: Part 1 -- Chapter 8- Graph Theory: Part 2 -- Chapter 9- Existence of Combinatorial Congurations -- Chapter 10- Mathematical Games -- Chapter 11- Elementary Probability -- Chapter 12- Additional Problems -- Solutions to Exercises and Problems -- References -- Index.
Sommario/riassunto	This text provides a theoretical background for several topics in combinatorial mathematics, such as enumerative combinatorics (including partitions and Burnside's lemma), magic and Latin squares, graph theory, extremal combinatorics, mathematical games and elementary probability. A number of examples are given with explanations while the book also provides more than 300 exercises of different levels of difficulty that are arranged at the end of each chapter, and more than 130 additional challenging problems, including problems from mathematical olympiads. Solutions or hints to all exercises and problems are included. The book can be used by secondary school students preparing for mathematical competitions, by

their instructors, and by undergraduate students. The book may also be useful for graduate students and for researchers that apply combinatorial methods in different areas.