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Sommario/riassunto	This open access book integrates foundational principles with advanced methodologies concerning maximal planar graphs. It offers readers an exceptional examination of graph structures, chromatic polynomials, and the construction and proof techniques of the Four-Color Conjecture. It is tailored for researchers, educators, and students involved in graph theory, combinatorics, and computational mathematics. The book consists of nine meticulously developed chapters. It starts with fundamental concepts in graph theory and then advances to pioneering computational proofs and recursive formulas of the chromatic number related to maximal planar graphs. Notable features include comprehensive discharging techniques, innovative approaches for constructing graphs of various orders, and

groundbreaking conjectures concerning tree-colorability and unique four-colorability. The concluding chapter introduces Kempe's changes, offering new insights into the dynamics of graph coloring. Whether you are an academic enhancing your theoretical knowledge or a student searching for clear explanations for complex concepts, this book provides essential tools for navigating and addressing some of the most intricate challenges in graph theory. Its rigorous analysis and computational techniques equip readers with the necessary skills to engage deeply with maximal planar graph problems, making it an indispensable resource for advancing research and practical applications. No prior knowledge is necessary; however, a foundational understanding of graph theory is advised. This opportunity presents a chance to explore innovative perspectives and methodologies that expand the horizons of mathematical inquiry and proof development.