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Sommario/riassunto	This book demonstrates how to formally model various mathematical domains (including algorithms operating in these domains) in a way that makes them amenable to a fully automatic analysis by computer software. The presented domains are typically investigated in discrete mathematics, logic, algebra, and computer science; they are modeled in a formal language based on first-order logic which is sufficiently rich to express the core entities in whose correctness we are interested: mathematical theorems and algorithmic specifications. This formal language is the language of RISCAL, a "mathematical model checker" by

which the validity of all formulas and the correctness of all algorithms can be automatically decided. The RISCAL software is freely available; all formal contents presented in the book are given in the form of specification files by which the reader may interact with the software while studying the corresponding book material.