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Proving Theorems; EXERCISES; Chapter 4 - Introduction to Number Theory; 4.1 Binary Operators; 4.2 Commonly Used Number Systems; 4.2.1 The Natural Numbers; 4.2.2 The Whole Numbers; 4.2.3 The Integers
4.2.4 The Rational Numbers4.2.5 The Real Numbers; 4.3 Elementary Number Theory; 4.3.1 Odd and Even Numbers; 4.3.2 Divisibility; 4.3.3 Prime Numbers; 4.3.4 Recursively Defined Numbers; EXERCISES; Chapter 5 - The Foundations of Calculus; 5.1 Functions; 5.2 Sequences of Real Numbers; 5.2.1 Convergent Sequences and Limit Theorems; 5.2.2 Monotone Sequences; 5.2.3 Cauchy Sequences; 5.3 Limits of Functions; 5.4 Continuity; 5.5 Derivatives; EXERCISES; Chapter 6 - Foundations of Algebra; 6.1 Introduction to Sets; 6.1.1 Set Algebra; 6.1.2 Element Chasing Proofs
6.1.3 Unions and Intersections of Finite Collections of Sets6.1.4 Countable and Uncountable Sets; 6.2 An Introduction to Group Theory; 6.2.1 Groups; 6.2.2 Subgroups; EXERCISES; References; Index

Sommario/riassunto

A hands-on introduction to the tools needed for rigorous and theoretical mathematical reasoningSuccessfully addressing the frustration many students experience as they make the transition from computational mathematics to advanced calculus and algebraic structures, Theorems, Corollaries, Lemmas, and Methods of Proof equips students with the tools needed to succeed while providing a firm foundation in the axiomatic structure of modern mathematics.This essential book:* Clearly explains the relationship between definitions, conjectures, theorems, corollaries, lemmas, and proof