Logic And Set Theory With Applications 6th Edition

Set Theory And Foundations Of Mathematics: An Introduction To Mathematical Logic - Volume I: Set Theory
Concise Introduction to Logic and Set Theory
Set Theory
A Book of Set Theory
Elements of Mathematical Logic and Set Theory
A First Course
Lectures in Logic and Set Theory
A First Course in Mathematical Logic and Set Theory
Introduction to Mathematical Logic
Set Theory Computable Functions Model Theory
A Logical Foundation for Potentialist Set Theory
Logic for Physicists
The Foundations of Mathematics
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Basic Discrete Mathematics
Notes on Logic and Set Theory
Set Theory and Foundations of Mathematics
An Introduction to Abstract Mathematics, Third Edition
Provability, Computability and Reflection
Sets, Logic and Categories
Logic, Set Theory, and Probability
Set Theory for Physicists
Applying Formalized Logic to Analysis
An Introduction to Propositional Logic and Set Theory
Set Theory
Set Theory
Set Theory, Logic and Their Limitations
Surveys in Set Theory
A Critical Introduction
Logic, Induction and Sets
Problems in Set Theory, Mathematical Logic and the Theory of Algorithms
Set Theory and its Philosophy
Philosophical Introduction to Set Theory
Computational Logic and Set Theory
The Structure of Proof
With Logic and Set Theory
Logic and Set Theory
Set Theory and Its Logic, Revised Edition

PATEL IZAIAH

Set Theory And Foundations Of Mathematics: An Introduction To Mathematical Logic - Volume I: Set Theory World Scientific Publishing Company
"There are many textbooks available for a so-called transition course from calculus to abstract mathematics. I have taught this course several times and always find it problematic. The Foundations of Mathematics (Stewart and Tall) is a horse of a different color. The writing is excellent and there is actually some useful mathematics. I definitely like this book."--The Bulletin of Mathematics Books
Concise Introduction to Logic and Set Theory Cambridge University Press
This short textbook provides a succinct introduction to mathematical logic and set theory, which together form the foundations for the rigorous development of mathematics. It will be suitable for all mathematics undergraduates coming to the subject for the first time. The book is based on lectures given at the University of Cambridge and covers the basic concepts of logic: first order logic, consistency, and the completeness theorem, before introducing the reader to the fundamentals of axiomatic set theory. There are also chapters on recursive functions, the axiom of choice, ordinal and cardinal arithmetic and the incompleteness theorems. Dr Johnstone has included numerous exercises designed to illustrate the key elements of the theory and to provide applications of basic logical concepts to other areas of mathematics. Consequently the book, while making an attractive first textbook for those who plan to specialise in logic, will be particularly valuable for mathematics and computer scientists whose primary interests lie elsewhere.
Set Theory Springer Science & Business Media
A mathematical introduction to the theory and applications of logic and set theory with an emphasis on writing proofs Highlighting the applications and notations of basic mathematical concepts within the framework of logic and set theory, A First Course in Mathematical Logic and Set Theory introduces how logic is used to prepare and structure proofs and solve more complex problems. The book begins with propositional logic, including two-column proofs and truth table applications, followed by first-order logic, which provides the structure for writing mathematical proofs. Set theory is then introduced and serves as the basis for defining relations, functions, numbers, mathematical induction, ordinals, and cardinals. The book concludes with a primer on basic model theory with applications to abstract algebra. A First Course in Mathematical Logic and Set Theory also includes: Section exercises designed to show the interactions between topics and reinforce the presented ideas and concepts Numerous examples that illustrate theorems and employ basic concepts such as Euclid’s lemma, the Fibonacci sequence, and unique factorization Coverage of important theorems including the well-ordering theorem, completeness theorem, compactness theorem, as well as the theorems of Löwenheim–Skolem, Burali-Forti, Hartogs, Cantor–Schröder–Bernstein, and König An excellent textbook for students studying the foundations of mathematics and mathematical proofs, A First Course in Mathematical Logic and Set Theory is also appropriate for readers preparing for careers in mathematics education or computer science. In addition, the book is ideal for introductory courses on mathematical logic and/or set theory and appropriate for upper-undergraduate transition courses with rigorous mathematical reasoning involving algebra, number theory, or analysis.
A Book of Set Theory World Scientific Publishing Company
Set theory is a branch of mathematics with a special subject matter, the infinite, but also a general framework for all modern mathematics, whose notions figure in every branch, pure and applied. This Element will offer a concise introduction, treating the origins of the subject, the basic notion of set, the axioms of set theory and immediate consequences, the set-theoretic reconstruction of mathematics, and the theory of the infinite, touching also on selected topics from higher set theory, controversial axioms and undecided questions, and philosophical issues raised by technical developments.
Elements of Mathematical Logic and Set Theory Springer Science & Business Media
Set Theory and LogicCourier Corporation
A First Course Cambridge University Press
A mathematical introduction to the theory and applications of logic and set theory with an emphasis on writing proofs Highlighting the applications and notations of basic mathematical concepts within the framework of logic and set theory, A First Course in Mathematical Logic and Set Theory introduces how logic is used to prepare and structure proofs and solve more complex problems. The book begins with propositional logic, including two-column proofs and truth table applications, followed by first-order logic, which provides the structure for writing mathematical proofs. Set theory is then introduced and serves as the basis for defining relations, functions, numbers, mathematical induction, ordinals, and cardinals. The book concludes with a primer on basic model theory with applications to abstract algebra. A First Course in Mathematical Logic and Set Theory also includes: Section exercises designed to show the interactions between topics and reinforce the presented ideas and concepts Numerous examples that illustrate theorems and employ basic concepts such as Euclid’s lemma, the Fibonacci sequence, and unique factorization Coverage of important theorems including the well-ordering theorem, completeness theorem, compactness theorem, as well as the theorems of Löwenheim–Skolem, Burali-Forti, Hartogs, Cantor–Schröder–Bernstein, and König An excellent textbook for students studying the foundations of mathematics and mathematical proofs, A First Course in Mathematical Logic and Set Theory is also appropriate for readers preparing for careers in mathematics education or computer science. In addition, the book is ideal for introductory courses on mathematical logic and/or set theory and appropriate for upper-undergraduate transition courses with rigorous mathematical reasoning involving algebra, number theory, or analysis.
Lectures in Logic and Set Theory World Scientific
This book is designed for readers who know elementary mathematical logic and axiomatic set theory, and who want to learn more about set theory. The primary focus of the book is on the independence proofs. Most famous among these is the independence of the Continuum Hypothesis (CH); that is, there are models of the axioms of set theory (ZFC) in which CH is true, and other models in which CH is false. More generally, cardinal

exponentiation on the regular cardinals can consistently be anything not contradicting the classical theorems of Cantor and König. The basic methods for the independence proofs are the notion of constructibility, introduced by Gödel, and the method of forcing, introduced by Cohen. This book describes these methods in detail, verifi es the basic independence results for cardinal exponentiation, and also applies these methods to prove the independence of various mathematical questions in measure theory and general topology. Before the chapters on forcing, there is a fairly long chapter on "infi nitary combinatorics". This consists of just mathematical theorems (not independence results), but it stresses the areas of mathematics where set-theoretic topics (such as cardinal arithmetic) are relevant. There is, in fact, an interplay between infi nitary combinatorics and independence proofs. Infi nitary combinatorics suggests many set-theoretic questions that turn out to be independent of ZFC, but it also provides the basic tools used in forcing arguments. In particular, Martin's Axiom, which is one of the topics under infi nitary combinatorics, introduces many of the basic ingredients of forcing.

A First Course in Mathematical Logic and Set Theory Elsevier

This book comprises five expository articles and two research papers on topics of current interest in set theory and the foundations of mathematics. Articles by Baumgartner and Devlin introduce the reader to proper forcing. This is a development by Saharon Shelah of Cohen's method which has led to solutions of problems that resisted attack by forcing methods as originally developed in the 1960s. The article by Guaspari is an introduction to descriptive set theory, a subject that has developed dramatically in the last few years. Articles by Kanamori and Stanley discuss one of the most difficult concepts in contemporary set theory, that of the morass, first created by Ronald Jensen in 1971 to solve the gap-two conjecture in model theory, assuming Gödel's axiom of constructibility. The papers by Prikry and Shelah complete the volume by giving the reader the flavour of contemporary research in set theory. This book will be of interest to graduate students and research workers in set theory and mathematical logic.

Introduction to Mathematical Logic Cambridge University Press

This must-read text presents the pioneering work of the late Professor Jacob (Jack) T. Schwartz on computational logic and set theory and its application to proof verification techniques, culminating in the ÆtnaNova system, a prototype computer program designed to verify the correctness of mathematical proofs presented in the language of set theory. Topics and features: describes in depth how a specific first-order theory can be exploited to model and carry out reasoning in branches of computer science and mathematics; presents an unique system for automated proof verification in large-scale software systems; integrates important proof-engineering issues, reflecting the goals of large-scale verifiers; includes an appendix showing formalized proofs of ordinals, of various properties of the transitive closure operation, of finite and transfinite induction principles, and of Zorn’s lemma.

Set Theory Computable Functions Model Theory Courier Corporation

"This accessible approach to set theory for upper-level undergraduates poses rigorous but simple arguments. Each definition is accompanied by commentary that motivates and explains new concepts. A historical introduction is followed by discussions of classes and sets, functions, natural and cardinal numbers, the arithmetic of ordinal numbers, and related topics. 1971 edition with new material by the author"--

A Logical Foundation for Potentialist Set Theory CRC Press

A new approach to the standard axioms of set theory, relating the theory to the philosophy of science and metametaphysics.

Logic for Physicists CRC Press

This book is especially useful for students who are about to finish high school and want to properly prepare in mathematics to start college or university. The book is also suitable for those students who have already started higher education. Many of these students still face barriers in learning more complex mathematical concepts and their adequate application. A flaw in understanding basic concepts is what makes them reluctant to learn more.Since the objective is to help students achieve an adequate understanding of basic concepts, this book was written in plain language to make the process of acquiring mathematical knowledge a friendly, enjoyable, and accessible one even for those students who dislike mathematics. The simplicity of language does not sacrifice the rigor or depth of the study offered in the next pages, which guarantees adequate management of concepts. Students are not required to have math skills; the only requirement is to be interested in learning. In the three chapters that make up this text, we address the building blocks of Calculus or Mathematical Analysis. We start with Propositional Logic, which provides the language, logical reasoning, and training on how to properly address mathematical proofs. This chapter is followed by an introduction to Set Theory where we develop a body of concepts that are used in the definition of many fundamental concepts of Calculus such as Function. This book ends with the study of the real number system which is addressed from an axiomatic approach. Throughout the book, we offer examples to illustrate all the concepts that we discuss. Additionally, a set of 484 exercises are proposed to be solved by students. The answers to those exercises are offered at the end of each chapter. Thus, students can check their progress in learning the concepts discussed. The level of difficulty of such exercises varies from the most elementary level to a moderate level since the main objective of this book is to help students to properly learn these basic concepts and not to test their mathematical skills.

The Foundations of Mathematics Elsevier

This two-volume work bridges the gap between introductory expositions of logic (or set theory) and the research literature. It can be used as a text in an advanced undergraduate or beginning graduate course in mathematics, computer science, or philosophy. The volumes are written in a user-friendly lecture style that makes them equally effective for self-study or class use. Volume I includes formal proof techniques, applications of compactness (including nonstandard analysis), computability and its relation to the completeness phenonmenon, and the first presentation of a complete proof of Godel's 2nd incompleteness since Hilbert and Bernay's Grundlagen.

A First Course in Mathematical Logic and Set Theory Cambridge University Press

This unique approach maintains that set theory is the primary mechanism for ideological and theoretical unification in modern mathematics, and its technically informed discussion covers a variety of philosophical issues. 1990 edition.

Basic Discrete Mathematics Cambridge University Press

This is an introductory undergraduate textbook in set theory. In mathematics these days, essentially everything is a set. Some

knowledge of set theory is necessary part of the background everyone needs for further study of mathematics. It is also possible to study set theory for its own interest--it is a subject with intruiging results anout simple objects. This book starts with material that nobody can do without. There is no end to what can be learned of set theory, but here is a beginning.

Notes on Logic and Set Theory Clarendon Press

Keith Devlin. You know him. You've read his columns in MAA Online, you've heard him on the radio, and you've seen his popular mathematics books. In between all those activities and his own research, he's been hard at work revising Sets, Functions and Logic, his standard-setting text that has smoothed the road to pure mathematics for legions of undergraduate students. Now in its third edition, Devlin has fully reworked the book to reflect a new generation. The narrative is more lively and less textbook-like. Remarks and asides link the topics presented to the real world of students' experience. The chapter on complex numbers and the discussion of formal symbolic logic are gone in favor of more exercises, and a new introductory chapter on the nature of mathematics--one that motivates readers and sets the stage for the challenges that lie ahead. Students crossing the bridge from calculus to higher mathematics need and deserve all the help they can get. Sets, Functions, and Logic, Third Edition is an affordable little book that all of your transition-course students not only can afford, but will actually read...and enjoy...and learn from. About the Author Dr. Keith Devlin is Executive Director of Stanford University's Center for the Study of Language and Information and a Consulting Professor of Mathematics at Stanford. He has written 23 books, one interactive book on CD-ROM, and over 70 published research articles. He is a Fellow of the American Association for the Advancement of Science, a World Economic Forum Fellow, and a former member of the Mathematical Sciences Education Board of the National Academy of Sciences,. Dr. Devlin is also one of the world's leading popularizers of mathematics. Known as "The Math Guy" on NPR's Weekend Edition, he is a frequent contributor to other local and national radio and TV shows in the US and Britain, writes a monthly column for the Web journal MAA Online, and regularly writes on mathematics and computers for the British newspaper The Guardian.

Set Theory and Foundations of Mathematics Cambridge University Press

Volume II, on formal (ZFC) set theory, incorporates a self-contained "chapter 0" on proof techniques so that it is based on formal logic, in the style of Bourbaki. The emphasis on basic techniques provides a solid foundation in set theory and a thorough context for the presentation of advanced topics (such as absoluteness, relative consistency results, two expositions of Godel's construstive universe, numerous ways of viewing recursion and Cohen forcing).

An Introduction to Abstract Mathematics, Third Edition Springer Science & Business Media

Set theory, logic and category theory lie at the foundations of mathematics, and have a dramatic effect on the mathematics that we do, through the Axiom of Choice, Gödel's Theorem, and the Skolem Paradox. But they are also rich mathematical theories in their own right, contributing techniques and results to working mathematicians such as the Compactness Theorem and module categories. The book is aimed at those who know some mathematics and want to know more about its building blocks. Set theory is first treated naively an axiomatic treatment is given after the basics of first-order logic have been introduced. The discussion is su pported by a wide range of exercises. The final chapter touches on philosophical issues. The book is supported by a World Wibe Web site containing a variety of supplementary material.

Provability, Computability and Reflection Cambridge University Press

This is an introduction to logic and the axiomatization of set theory from a unique standpoint. Philosophical considerations, which are often ignored or treated casually, are here given careful consideration, and furthermore the author places the notion of inductively defined sets (recursive datatypes) at the center of his exposition resulting in a treatment of well established topics that is fresh and insightful. The presentation is engaging, but always great care is taken to illustrate difficult points. Understanding is also aided by the inclusion of many exercises. Little previous knowledge of logic is required of the reader, and only a background of standard undergraduate mathematics is assumed.

Sets, Logic and Categories Cambridge University Press

Studies in Logic and the Foundations of Mathematics, Volume 102: Set Theory: An Introduction to Independence Proofs offers an introduction to relative consistency proofs in axiomatic set theory, including combinatorics, sets, trees, and forcing. The book first tackles the foundations of set theory and infinitary combinatorics. Discussions focus on the Suslin problem, Martin's axiom, almost disjoint and quasi-disjoint sets, trees, extensionality and comprehension, relations, functions, and well-ordering, ordinals, cardinals, and real numbers. The manuscript then ponders on well-founded sets and easy consistency proofs, including relativization, absoluteness, reflection theorems, properties of well-founded sets, and induction and recursion on well-founded relations. The publication examines constructible sets, forcing, and iterated forcing. Topics include Easton forcing, general iterated forcing, Cohen model, forcing with partial functions of larger cardinality, forcing with finite partial functions, and general extensions. The manuscript is a dependable source of information for mathematicians and researchers interested in set theory.