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Proofs 101: An Introduction to Formal Mathematics serves as an introduction to proofs for mathematics majors who have completed the calculus sequence (at least Calculus I and II) and a first course in linear algebra. The book prepares students for the proofs they will need to analyze and write the axiomatic nature of mathematics and the rigors of upper-level mathematics courses. Basic number theory, relations, functions, cardinality, and set theory will provide the material for the proofs and lay the foundation for a deeper understanding of mathematics, which students will need to carry with them throughout their future studies. Features Designed to be teachable across a single semester Suitable as an undergraduate textbook for Introduction to Proofs or Transition to Advanced Mathematics courses Offers a balanced variety of easy, moderate, and difficult exercises

This primer on legal reasoning is aimed at law students and upper-level undergraduates. But it is also an original exposition of basic legal concepts that scholars and lawyers will find stimulating. It covers such topics as rules, precedent, authority, analogical reasoning, the common law, statutory interpretation, legal realism, judicial opinions, legal facts, and burden of proof.

Mathematical Reasoning: Writing and Proof is a text for the ?rst college mathematics course that introduces students to the processes of constructing and writing proofs and focuses on the formal development of mathematics. The primary goals of the text are to help students: Develop logical thinking skills and to develop the ability to think more abstractly in a proof oriented setting; develop the ability to construct and write mathematical proofs using standard methods of mathematical proof including direct proofs, proof by contradiction, mathematical induction, case analysis, and counterexamples; develop the ability to read and understand written mathematical proofs; develop talents for creative thinking and problem solving; improve their quality of communication in mathematics. This includes improving writing techniques, reading comprehension, and oral communication in mathematics; better understand the nature of mathematics and its language. Another important goal of this text is to provide students with material that will be needed for their further study of mathematics. Important features of the book include: Emphasis on writing in mathematics; instruction in the process of constructing proofs; emphasis on active learning.There are no changes in content between Version 2.0 and previous versions of the book. The only change is that the appendix with answers and hints for selected exercises now contains solutions and hints for more exercises.

Did you know that games and puzzles have given birth to many of today's deepest mathematical subjects? Now, with Douglas Ensley and Winston Crawley's Introduction to Discrete Mathematics, you can explore mathematical writing, abstract structures, counting, discrete probability, and graph theory, through games, puzzles, patterns, magic tricks, and real-world problems. You will discover how new mathematical topics can be applied to every-

day situations, learn how to work with proofs, and develop your problem-solving skills along the way. Online applications help improve your mathematical reasoning. Highly intriguing, interactive Flash-based applications illustrate key mathematical concepts and help you develop your ability to reason mathematically, solve problems, and work with proofs. Explore More icons in the text direct you to online activities at www.wiley.com/college/ensley. Improve your grade with the Student Solutions Manual. A supplementary Student Solutions Manual contains more detailed solutions to selected exercises in the text.

The purpose of this book is to introduce the basic ideas of mathematical proof to students embarking on university mathematics. The emphasis is on helping the reader in understanding and constructing proofs and writing clear mathematics. This is achieved by exploring set theory, combinatorics and number theory, topics which include many fundamental ideas which are part of the tool kit of any mathematician. This material illustrates how familiar ideas can be formulated rigorously, provides examples demonstrating a wide range of basic methods of proof, and includes some of the classic proofs. The book presents mathematics as a continually developing subject. Material meeting the needs of readers from a wide range of backgrounds is included. Over 250 problems include questions to interest and challenge the most able student as well as plenty of routine exercises to help familiarize the reader with the basic ideas.

Brimming with visual examples of concepts, derivation rules, and proof strategies, this introductory text is ideal for students with no previous experience in logic. Students will learn translation both from formal language into English and from English into formal language; how to use truth trees and truth tables to test propositions for logical properties; and how to construct and strategically use derivation rules in proofs.

Known for its accessible, precise approach, Epp's DISCRETE MATHEMATICS WITH APPLICATIONS, 5th Edition, introduces discrete mathematics with clarity and precision. Coverage emphasizes the major themes of discrete mathematics as well as the reasoning that underlies mathematical thought. Students learn to think abstractly as they study the ideas of logic and proof. While learning about logic circuits and computer addition, algorithm analysis, recursive thinking, computability, automata, cryptography and combinatorics, students discover that ideas of discrete mathematics underlie and are essential to today's science and technology. The author's emphasis on reasoning provides a foundation for computer science and upper-level mathematics courses. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

This book is an introduction to the language and standard proof methods of mathematics. It is a bridge from the computational courses (such as calculus or differential equations) that students typically encounter in their first year of college to a more abstract

outlook. It lays a foundation for more theoretical courses such as topology, analysis and abstract algebra. Although it may be more meaningful to the student who has had some calculus, there is really no prerequisite other than a measure of mathematical maturity.

'You shouldn't drink too much. The Earth is round. Milk is good for your bones.' Are any of these claims true? How can you tell? Can you ever be certain you are right? For anyone tackling philosophical logic and critical thinking for the first time, Critical Thinking: An Introduction to Reasoning Well provides a practical guide to the skills required to think critically. From the basics of good reasoning to the difference between claims, evidence and arguments, Robert Arp and Jamie Carlin Watson cover the topics found in an introductory course. Now revised and fully updated, this Second Edition features a glossary, chapter summaries, more student-friendly exercises, study questions, diagrams, and suggestions for further reading. Topics include: the structure, formation, analysis and recognition of arguments deductive validity and soundness inductive strength and cogency inference to the best explanation truth tables tools for argument assessment informal and formal fallacies With real life examples, advice on graduate school entrance exams and an expanded companion website packed with additional exercises, an answer key and help with real life examples, this easy-to-follow introduction is a complete beginner's tool set to good reasoning, analyzing and arguing. Ideal for students in basic reasoning courses and students preparing for graduate school.

Logic is a branch of philosophy, mathematics and computer science. It studies the required methods to determine whether a statement is true, such as reasoning and computation. Proofs and Algorithms: Introduction to Logic and Computability is an introduction to the fundamental concepts of contemporary logic - those of a proof, a computable function, a model and a set. It presents a series of results, both positive and negative, - Church's undecidability theorem, Gödel's incompleteness theorem, the theorem asserting the semi-decidability of provability - that have profoundly changed our vision of reasoning, computation, and finally truth itself. Designed for undergraduate students, this book presents all that philosophers, mathematicians and computer scientists should know about logic.

This book is designed to engage students' interest and promote their writing abilities while teaching them to think critically and creatively. Dowden takes an activist stance on critical thinking, asking students to create and revise arguments rather than simply recognizing and criticizing them. His book emphasizes inductive reasoning and the analysis of individual claims in the beginning, leaving deductive arguments for consideration later in the course.

This book constitutes the thoroughly refereed post-proceedings of the Third International Workshop of the Types Working Group, TYPES 2003, held in Torino, Italy in April/May 2003. The 25 revised full papers presented were carefully selected during two rounds of reviewing and improvement. All current issues in type theory and type systems and their applications to programming, systems design, and proof theory are addressed. Among the systems dealt with are Isabelle/Isar, PAF!, and Coq.

Introduction to proof theory and its applications in mathematical logic, theoretical computer science and artificial intelligence. Bond and Keane explicate the elements of logical, mathematical argument to elucidate the meaning and importance of mathematical rigor. With definitions of concepts at their disposal, students learn the rules of logical inference, read and understand proofs of theorems, and write their own proofs all while becoming familiar with the grammar of mathematics and its style. In addition, they

will develop an appreciation of the different methods of proof (contradiction, induction), the value of a proof, and the beauty of an elegant argument. The authors emphasize that mathematics is an ongoing, vibrant disciplineits long, fascinating history continually intersects with territory still uncharted and questions still in need of answers. The authors extensive background in teaching mathematics shines through in this balanced, explicit, and engaging text, designed as a primer for higher- level mathematics courses. They elegantly demonstrate process and application and recognize the byproducts of both the achievements and the missteps of past thinkers. Chapters 1-5 introduce the fundamentals of abstract mathematics and chapters 6-8 apply the ideas and techniques, placing the earlier material in a real context. Readers interest is continually piqued by the use of clear explanations, practical examples, discussion and discovery exercises, and historical comments.

Rev. ed. of: Language, proof, and logic / Jon Barwise & John Etchemendy.

Many students have trouble the first time they take a mathematics course in which proofs play a significant role. This new edition of Velleman's successful text will prepare students to make the transition from solving problems to proving theorems by teaching them the techniques needed to read and write proofs. The book begins with the basic concepts of logic and set theory, to familiarize students with the language of mathematics and how it is interpreted. These concepts are used as the basis for a step-by-step breakdown of the most important techniques used in constructing proofs. The author shows how complex proofs are built up from these smaller steps, using detailed 'scratch work' sections to expose the machinery of proofs about the natural numbers, relations, functions, and infinite sets. To give students the opportunity to construct their own proofs, this new edition contains over 200 new exercises, selected solutions, and an introduction to Proof Designer software. No background beyond standard high school mathematics is assumed. This book will be useful to anyone interested in logic and proofs: computer scientists, philosophers, linguists, and of course mathematicians.

In the twenty-first century, everyone can benefit from being able to think mathematically. This is not the same as "doing math." The latter usually involves the application of formulas, procedures, and symbolic manipulations; mathematical thinking is a powerful way of thinking about things in the world -- logically, analytically, quantitatively, and with precision. It is not a natural way of thinking, but it can be learned.Mathematicians, scientists, and engineers need to "do math," and it takes many years of college-level education to learn all that is required. Mathematical thinking is valuable to everyone, and can be mastered in about six weeks by anyone who has completed high school mathematics. Mathematical thinking does not have to be about mathematics at all, but parts of mathematics provide the ideal target domain to learn how to think that way, and that is the approach taken by this short but valuable book.The book is written primarily for first and second year students of science, technology, engineering, and mathematics (STEM) at colleges and universities, and for high school students intending to study a STEM subject at university. Many students encounter difficulty going from high school math to college-level mathematics. Even if they did well at math in school, most are knocked off course for a while by the shift in emphasis, from the K-12 focus on mastering procedures to the "mathematical thinking" characteristic of much university mathematics. Though the majority survive the transition, many do not. To help them make the shift, colleges and universities often have a "transition course." This book could serve as a textbook or a supplementary source for such a course.Because of the

widespread applicability of mathematical thinking, however, the book has been kept short and written in an engaging style, to make it accessible to anyone who seeks to extend and improve their analytic thinking skills. Going beyond a basic grasp of analytic thinking that everyone can benefit from, the STEM student who truly masters mathematical thinking will find that college-level mathematics goes from being confusing, frustrating, and at times seemingly impossible, to making sense and being hard but doable.Dr. Keith Devlin is a professional mathematician at Stanford University and the author of 31 previous books and over 80 research papers. His books have earned him many awards, including the Pythagoras Prize, the Carl Sagan Award, and the Joint Policy Board for Mathematics Communications Award. He is known to millions of NPR listeners as "the Math Guy" on Weekend Edition with Scott Simon. He writes a popular monthly blog "Devlin's Angle" for the Mathematical Association of America, another blog under the name "profkeithdevlin", and also blogs on various topics for the Huffington Post.

Designed as a text for a first course in the college mathematics curriculum that focuses on the formal development of mathematics, this book explains how to read and understand mathematical definitions and proofs, and how to construct and write mathematical proofs. Emphasis is on writing mathematical exposition, with guidelines for writing proofs incorporated throughout the text. Learning features include preview activities that prepare students to participate in classroom discussion and activities for in-class group work. Coverage encompasses logical reasoning, constructing and writing proofs, set theoy, mathematical induction, functions, and topics in number theory and set theory.

Type theory is a fast-evolving field at the crossroads of logic, computer science and mathematics. This gentle step-by-step introduction is ideal for graduate students and researchers who need to understand the ins and outs of the mathematical machinery, the role of logical rules therein, the essential contribution of definitions and the decisive nature of well-structured proofs. The authors begin with untyped lambda calculus and proceed to several fundamental type systems, including the well-known and powerful Calculus of Constructions. The book also covers the essence of proof checking and proof development, and the use of dependent type theory to formalise mathematics. The only prerequisite is a basic knowledge of undergraduate mathematics. Carefully chosen examples illustrate the theory throughout. Each chapter ends with a summary of the content, some historical context, suggestions for further reading and a selection of exercises to help readers familiarise themselves with the material.

This book introduces students to the process of doing mathematics and prepares them to succeed in higher-level mathematics courses. By discussing proof techniques, problem solving methods, and the understanding of mathematical ideas, the book provides a solid foundation for students majoring in mathematics, science, and engineering. Students will learn to grasp the underlying concepts of a subject and how to apply these concepts to solving problems. While being able to understand and reproduce proofs of theorems, they will also gain the ability to comprehend the connections among the important concepts and techniques of each subject. This book is intended for a shorter course on proofs and mathematical reasoning, and could also be used as a supplemental text in courses such as algebra, analysis, and linear algebra.

NCTM's Process Standards support teaching that helps students develop independent, effective mathematical thinking. The books in the Heinemann Math Process Standards Series give every middle grades math teacher the opportunity to explore each standard in depth. The series offers friendly, reassuring advice and ready-to-use examples to any teacher ready to embrace the Process Standards. In Introduction to Reasoning and Proof, Denisse Thompson and Karren Schultz-Ferrell familiarize you with ways to help students explore their reasoning and support their mathematical thinking. They offer an array of entry points for understanding, planning, and teaching, including strategies for encouraging middle grades students to describe their reasoning about mathematical activities. Thompson and Schultz-Ferrell also provide methods for questioning students about their conclusions and their thought processes in ways that help support classroom-wide learning. The book and accompanying CD-ROM are filled with activities that are modifiable for immediate use with students of all levels customizable to match your specific lessons. In addition, a correlation guide helps you match the math content you teach with the mathematical processes it utilizes. If your students could benefit from more opportunities to develop their reasoning about math concepts, or if you're simply looking for new ways to work the reasoning and proof standards into your curriculum, read, dog-ear, and teach with Introduction to Reasoning and Proof. And if you'd like to learn about any of NCTM's process standards, or if you're looking for new, classroom-tested ways to address them in your math teaching, look no further than Heinemann's Math Process Standards Series. You'll find them explained in the most understandable and practical way: from one teacher to another.

Concise text begins with overview of elementary mathematical concepts and outlines theory of Boolean algebras; defines operators for elimination, division, and expansion; covers syllogistic reasoning, solution of Boolean equations, functional deduction. 1990 edition.

In this charming volume, a noted English mathematician uses humor and anecdote to illuminate the concepts of groups, sets, subsets, topology, Boolean algebra, and other mathematical subjects. 200 illustrations.

According to the great mathematician Paul Erdös, God maintains perfect mathematical proofs in The Book. This book presents the authors candidates for such "perfect proofs," those which contain brilliant ideas, clever connections, and wonderful observations, bringing new insight and surprising perspectives to problems from number theory, geometry, analysis, combinatorics, and graph theory. As a result, this book will be fun reading for anyone with an interest in mathematics.

Susanna Epp's DISCRETE MATHEMATICS: AN INTRODUCTION TO MATHEMATICAL REASONING, provides the same clear introduction to discrete mathematics and mathematical reasoning as her highly acclaimed DISCRETE MATHEMATICS WITH APPLICATIONS, but in a compact form that focuses on core topics and omits certain applications usually taught in other courses. The book is appropriate for use in a discrete mathematics course that emphasizes essential topics or in a mathematics major or minor course that serves as a transition to abstract mathematical thinking. The ideas of discrete mathematics underlie and are essential to the science and technology of the computer age. This book offers a synergistic union of the major themes of discrete mathematics together with the reasoning that underlies mathematical thought. Renowned for her lucid, accessible prose, Epp explains complex, abstract concepts with clarity and precision, helping students develop the ability to think abstractly as they study each topic. In doing so, the book provides students with a strong foundation both for computer science and for other upper-level mathematics courses. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

The last decade has seen a rapid growth in our understanding of

the cognitive systems that underlie mathematical learning and performance, and an increased recognition of the importance of this topic. This book showcases international research on the most important cognitive issues that affect mathematical performance across a wide age range, from early childhood to adulthood. The book considers the foundational competencies of non-symbolic and symbolic number processing before discussing arithmetic, conceptual understanding, individual differences and dyscalculia, algebra, number systems, reasoning and higher-level mathematics such as formal proof. Drawing on diverse methodology from behavioural experiments to brain imaging, each chapter discusses key theories and empirical findings and introduces key tasks used by researchers. The final chapter discusses challenges facing the future development of the field of mathematical cognition and reviews a set of open questions that mathematical cognition researchers should address to move the field forward. This book is ideal for undergraduate or graduate students of psychology, education, cognitive sciences, cognitive neuroscience and other academic and clinical audiences including mathematics educators and educational psychologists.

Our extraordinary capacity to reason and solve problems sets us aside from other animals, but our evolved thinking processes also leave us susceptibile to bias and error. The study of thinking and reasoning goes back to Aristotle, and was one of the first topics to be studied when psychology separated from philosophy. In this Very Short Introduction Jonathan Evans explores cognitive psychological approaches to understanding the nature of thinking and reasoning, problem solving, and decision making. He shows how our problem solving capabilities are hugely dependent on also having the imagination to ask the right questions, and the ability to see things from a completely new perspective. Beginning by considering the approaches of the behaviourists and the Gestalt psychologists, he moves on to modern explorations of thinking, including hypothetical thinking, conditionals, deduction, rationality, and intuition. Covering the role of past learning, IQ, and cognitive biases, Evans also discusses the idea that there may be two different ways of thinking, arising from our evolutionary history. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

This accessible textbook gives beginning undergraduate mathematics students a first exposure to introductory logic, proofs, sets, functions, number theory, relations, finite and infinite sets, and the foundations of analysis. The book provides students with a quick path to writing proofs and a practical collection of tools that they can use in later mathematics courses such as abstract algebra and analysis. The importance of the logical structure of a mathematical statement as a framework for finding a proof of that statement, and the proper use of variables, is an early and consistent theme used throughout the book.

Focuses on essential knowledge for teachers about proof and the process of proving. It is organised around five big ideas, supported by multiple smaller, interconnected ideas-essential understandings. Taking you beyond a simple introduction to proof and the activities involved in proving, the book will broaden and deepen your mathematical understanding of one of the most challenging topics for students...and teachers.

Part I of this coherent, well-organized text deals with formal principles of inference and definition. Part II explores elementary intuitive set theory, with separate chapters on sets, relations, and functions. Ideal for undergraduates.

A Co-Publication of Routledge for the National Council of Teachers of Mathematics (NCTM) In recent years there has been increased interest in the nature and role of proof in mathematics education; with many mathematics educators advocating that proof should be a central part of the mathematics education of students at all grade levels. This important new collection provides that much-needed forum for mathematics educators to articulate a connected K-16 "story" of proof. Such a story includes understanding how the forms of proof, including the nature of argumentation and justification as well as what counts as proof, evolve chronologically and cognitively and how curricula and instruction can support the development of students' understanding of proof. Collectively these essays inform educators and researchers at different grade levels about the teaching and learning of proof at each level and, thus, help advance the design of further empirical and theoretical work in this area. By building and extending on existing research and by allowing a variety of voices from the field to be heard, Teaching and Learning Proof Across the Grades not only highlights the main ideas that have recently emerged on proof research, but also defines an agenda for future study.

This book eases students into the rigors of university mathematics. The emphasis is on understanding and constructing proofs and writing clear mathematics. The author achieves this by exploring set theory, combinatorics, and number theory, topics that include many fundamental ideas and may not be a part of a young mathematician's toolkit. This material illustrates how familiar ideas can be formulated rigorously, provides examples demonstrating a wide range of basic methods of proof, and includes some of the all-time-great classic proofs. The book presents mathematics as a continually developing subject. Material meeting the needs of readers from a wide range of backgrounds is included. The over 250 problems include questions to interest and challenge the most able student but also plenty of routine exercises to help familiarize the reader with the basic ideas.

Learn how to develop your reasoning skills and how to writewell-reasoned proofs Learning to Reason shows you how to use the basic elements ofmathematical language to develop highly sophisticated, logicalreasoning skills. You'll get clear, concise, easy-to-followinstructions on the process of writing proofs, including thenecessary reasoning techniques and syntax for constructingwell-written arguments. Through in-depth coverage of logic, sets,and relations, Learning to Reason offers a meaningful, integratedview of modern mathematics, cuts through confusing terms and ideas,and provides a much-needed bridge to advanced work in mathematicsas well as computer science. Original, inspiring, and designed formaximum comprehension, this remarkable book: * Clearly explains how to write compound sentences in equivalentforms and use them in valid arguments * Presents simple techniques on how to structure your thinking andwriting to form well-reasoned proofs * Reinforces these techniques through a survey of sets--thebuilding blocks of mathematics * Examines the fundamental types of relations, which is "where theaction is" in mathematics * Provides relevant examples and class-tested exercises designed tomaximize the learning experience * Includes a mind-building game/exercise space atwww.wiley.com/products/subject/mathematics/

Although this is an introductory text on proof theory, most of its contents is not found in a unified form elsewhere in the literature, except at a very advanced level. The heart of the book is the ordinal analysis of axiom systems, with particular emphasis on that of the impredicative theory of elementary inductive definitions on the natural numbers. The "constructive" consequences of ordinal analysis are sketched out in the epilogue. The book provides a self-contained treatment assuming no prior knowledge of proof

theory and almost none of logic. The author has, moreover, endeavoured not to use the "cabal language" of proof theory, but only a language familiar to most readers.

Graph Theory: An Introduction to Proofs, Algorithms, and Applications Graph theory is the study of interactions, conflicts, and connections. The relationship between collections of discrete objects can inform us about the overall network in which they reside, and graph theory can provide an avenue for analysis. This text, for the first undergraduate course, will explore major topics in graph theory from both a theoretical and applied viewpoint. Topics will progress from understanding basic terminology, to addressing computational questions, and finally ending with broad theoretical results. Examples and exercises will guide the reader through this progression, with particular care in strengthening proof techniques and written mathematical explanations. Current applications and exploratory exercises are provided to further the reader's mathematical reasoning and understanding of the relevance of graph theory to the modern world. Features The first chapter introduces graph terminology, mathematical modeling using graphs, and a review of proof techniques featured throughout the book The second chapter investigates three major route problems: eulerian circuits, hamiltonian cycles, and shortest paths. The third chapter focuses entirely on trees – terminology, applications, and theory. Four additional chapters focus around a major graph concept: connectivity, matching, coloring, and planarity. Each chapter brings in a modern application or approach. Hints and Solutions to selected exercises provided at the back of the book. Author Karin R. Saoub is an Associate Professor of Mathematics at Roanoke College in Salem, Virginia. She earned her PhD in mathematics from Arizona State University and BA from Wellesley College. Her research focuses on graph coloring and on-line algorithms applied to tolerance graphs. She is also the author of A Tour Through Graph Theory, published by CRC Press.

This self-contained text covers sets and numbers, elements of set theory, real numbers, the theory of groups, group isomorphism and homomorphism, theory of rings, and polynomial rings. 1969 edition.

NCTM's Process Standards were designed to support teaching that helps children develop independent, effective mathematical thinking. The books in the Heinemann Math Process Standards Series give every elementary teacher the opportunity to explore each one of the standards in depth. And with language and examples that don't require prior math training to understand, the series offers friendly, reassuring advice to any teacher preparing to embrace the Process Standards. In Introduction to Reasoning and Proof, Karren Shultz-Ferrell, Brenda Hammond, and Josepha Roblesfamiliarize you with ways to help students explore their reasoning and support their mathematical thinking. They offer an array of entry points for understanding, planning, and teaching, including strategies that help students develop strong mathematical reasoning and construct solid justifications for their thinking. Full of activities that are modifiable for immediate use with students of all levels and written by veteran teachers for teachers of every level of experience, Introduction to Reasoning and Proof highlights the importance of encouraging children to describe their reasoning about mathematical activities, while also recommending ways to question students about their conclusions and their thought processes in ways that help support classroom-wide learning. Best of all, like all the titles in the Math Process Standards Series, Introduction to Reasoning and Proof comes with two powerful tools to help you get started and plan well: a CD-ROM with activities customizable to match your lessons and a correlation guide that helps you match mathematical content with the processes it utilizes. If your students could benefit from more opportunities to explain their reasoning about math concepts. Or if you're simply looking for new ways to work the reasoning and proof standards into your curriculum, read, dog-ear, and teach with Introduction to Reasoning and Proof. And if you'd like to learn about any of NCTM's process standards, or if you're looking for new, classroom-tested ways to address them in your math teaching, look no further than Heinemann's Math Process Standards Series. You'll find them explained in the most understandable and practical way: from one teacher to another.