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KEY=AMS - HOGAN MATA

MATH INTO TEX: A SIMPLE GUIDE TO TYPESETTING MATH USING AMS-LATEX

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Springer Science & Business Media

MATHEMATICA AS A TOOL

AN INTRODUCTION WITH PRACTICAL EXAMPLES

Springer Science & Business Media **Mathematica combines symbolic and numerical calculations, plots, graphics programming, list calculations and structured documentation into an interactive environment. This book covers the program and shows with practical examples how even more complex problems can be solved with just a few commands. From the reviews: "A valuable introductory textbook on Mathematica and is very useful to scientists and engineers who use Mathematica in their work." -- ZENTRALBLATT MATH**

ACCELERATOR MASS SPECTROMETRY

ULTRASENSITIVE ANALYSIS FOR GLOBAL SCIENCE

CRC Press **This extensive undertaking, Accelerator Mass Spectrometry, conducts an elaborate and comprehensive summary of one of the foremost catalysts of progress in scientific research. Accelerator mass spectrometry (AMS), an innovative analytical technique, measures rare atoms at unprecedented levels of sensitivity, revolutionizing the science of radiocarbon dating and accessing new natural radioisotopes as environmental tracers and chronometers. This book demonstrates how AMS is applied in the studies of extraterrestrial materials, the earth sciences, the future of the global environment, and the history of mankind. This compendium also highlights the significant impact of AMS on several fields of scientific investigation, spurring remarkable studies in global climate change, ancient artifacts, pollution, nuclear safeguards, geochronology, and materials characterization. The myriad of sample types and variety of applications in this examination include: Meteorites from Mars Ancient air trapped in Antarctic ice The Shroud of Turin The dating of human bones The colonization of the Americas and Australia Ancient rock art The crown of Charlemagne Cancerogenic effects of cooked meat The consequences of the Chernobyl accident The role of aluminum in Alzheimer's Disease This unique edition has compiled the diverse set of scientific literature into a single volume, suitable as a text or resource on the major AMS-related outcomes, issues, and methods.**

TRANSLATION TITLE LIST AND CROSS REFERENCE GUIDE

A GATEWAY TO NUMBER THEORY: APPLYING THE POWER OF ALGEBRAIC CURVES

American Mathematical Soc. **Challenge: Can you find all the integers a, b, c satisfying $2a^2+3b^2=5c^2$? Looks simple, and there are in fact a number of easy solutions. But most of them turn out to be anything but obvious! There are infinitely many possibilities, and as any computer will tell you, each of a, b, c will usually be large. So the challenge remains … Find all**

integers a a, b, c satisfying 2a2+3b2=5c2 A major advance in number theory means this book can give an easy answer to this and countless similar questions. The idea behind the approach is transforming a degree-two equation in integer variables a, b, c into a plane curve defined by a polynomial. Working with the curve makes obtaining solutions far easier, and the geometric solutions then get translated back into integers. This method morphs hard problems into routine ones and typically requires no more than high school math. (The complete solution to 2a2+3b2=5c2 is included in the book.) In addition to equations of degree two, the book addresses degree-three equations—a branch of number theory that is today something of a cottage industry, and these problems translate into "elliptic curves". This important part of the book includes many pictures along with the exposition, making the material meaningful and easy to grasp. This book will fit nicely into an introductory course on number theory. In addition, the many solved examples, illustrations, and exercises make self-studying the book an option for students, thus becoming a natural candidate for a capstone course.

MATHEMATICS INTO TYPE

American Mathematical Soc. **This edition, updated by Arlene O'Sean and Antoinette Schleyer of the American Mathematical Society, brings Ms. Swanson's work up to date, reflecting the more technical reality of publishing today. While it includes information for copy editors, proofreaders, and production staff to do a thorough, traditional copyediting and proofreading of a manuscript and proof copy, it is increasingly more useful to authors, who have become intricately involved with the typesetting of their manuscripts.**

AN AUTHOR AND PERMUTED TITLE INDEX TO SELECTED STATISTICAL JOURNALS

All articles, notes, queries, corrigenda, and obituaries appearing in the following journals during the indicated years are indexed: Annals of mathematical statistics, 1961-1969; Biometrics, 1965-1969#3; Biometrics, 1951-1969; Journal of the American Statistical Association, 1956-1969; Journal of the Royal Statistical Society, Series B, 1954-1969,#2; South African statistical journal, 1967-1969,#2; Technometrics, 1959-1969.--p.iv.

AIR POLLUTION MODELING AND ITS APPLICATION XVII

Springer Science & Business Media **This volume seeks to cover the latest scientific developments in the field of air pollution modelling. It contains papers and posters presented at the Proceedings of the Twenty-Seventh NATO/CCMS International Technical Meeting on Air Pollution Modelling and Its Application, November 2004.**

SATANSTOE, OR THE LITTLEPAGE MANUSCRIPTS

A TALE OF THE COLONY

SUNY Press **Though Satanstoe has been too much neglected by readers of Cooper's time and ours, it is one of his most interesting books, combining nostalgic autobiographical recollections, pictures of manners, action and adventure, and social philosophy in one of the author's happiest experiments in fiction. Ostensibly, it gives a comprehensive view of colonial life and society in New York State in the middle of the eighteenth century, blending all these elements with the narrative skill for which the author has always been famous.**

TOWARDS EXCELLENCE

LEADING A DOCTORAL MATHEMATICS DEPARTMENT IN THE 21ST CENTURY

Amer Mathematical Society **Most reports about resources for mathematics research have focused on federal funding, but this book is different: It focuses on the health of universities and especially on the health of doctoral mathematics departments. One goal of this book is to convince research departments that they should value quality instruction, not just because of its importance to the mission of the university, but also because of its importance to the overall health of a research mathematics department. To protect the resources you have in times of budget cuts or to seek increased resources, you must match what you are accomplishing with the mission and priorities of the university. ... You should never tire of reminding your administration that the existence of your doctoral program and your research are defining characteristics of the university. ... It is your responsibility to convince your administration that an excellent undergraduate mathematics program is worth paying for. We have a simple message: To ensure their institution's commitment to excellence in mathematics research, doctoral departments must pursue excellence in their instructional programs.**

NOTICES OF THE AMERICAN MATHEMATICAL SOCIETY

NBS SPECIAL PUBLICATION

BIOMETRICS

ALGEBRAIC CURVES AND RIEMANN SURFACES

American Mathematical Soc. **The book was easy to understand, with many examples. The exercises were well chosen, and served to give further examples and developments of the theory. --William Goldman, University of Maryland In this book, Miranda takes the approach that algebraic curves are best encountered for the first time over the complex numbers, where the reader's classical intuition about surfaces, integration, and other concepts can be brought into play. Therefore, many examples of algebraic curves are presented in the first chapters. In this way, the book begins as a primer on Riemann surfaces, with complex charts and meromorphic functions taking center stage. But the main examples come from projective curves, and slowly but surely the text moves toward the algebraic category. Proofs of the Riemann-Roch and Serre Duality Theorems are presented in an algebraic manner, via an adaptation of the adelic proof, expressed completely in terms of solving a Mittag-Leffler problem. Sheaves and cohomology are introduced as a unifying device in the latter chapters, so that their utility and naturalness are immediately obvious. Requiring a background of one semester of complex variable theory and a year of abstract algebra, this is an excellent graduate textbook for a second-semester course in complex variables or a year-long course in algebraic geometry.**

HOMOTOPY INVARIANT ALGEBRAIC STRUCTURES

A CONFERENCE IN HONOR OF J. MICHAEL BOARDMAN : AMS SPECIAL SESSION ON HOMOTOPY THEORY, JANUARY 7-10, 1998, BALTIMORE, MD

American Mathematical Soc. **This volume presents the proceedings of the conference held in honor of J. Michael Boardman's 60th birthday. It brings into print his classic work on conditionally convergent spectral sequences. Over the past 30 years, it has become evident that some of the deepest questions in algebra are best understood against the background of homotopy theory. Boardman and Vogt's theory of homotopy-theoretic algebraic structures and the theory of spectra, for example, were two benchmark breakthroughs underlying the development of algebraic K-theory and the recent advances in the theory of motives. The volume begins with short notes by Mac Lane, May, Stasheff, and others on the early and recent history of the subject.But the bulk of the volume consists of research papers on topics that have been strongly influenced by Boardman's work. Articles give readers a vivid sense of the current state of the theory of 'homotopy-invariant algebraic structures'. Also included are two major foundational papers by Goerss and Strickland on applications of methods of algebra (i.e., Dieudonne modules and formal schemes) to problems of topology. Boardman is known for the depth and wit of his ideas. This volume is intended to reflect and to celebrate those fine characteristics.**

TECHNICAL DATA DIGEST

ADVANCES IN INFORMATION AND COMMUNICATION

PROCEEDINGS OF THE 2022 FUTURE OF INFORMATION AND COMMUNICATION CONFERENCE (FICC), VOLUME 2

Springer Nature

CONFIDENTIAL DOCUMENTS

MATHEMATICS FOR SOCIAL JUSTICE: RESOURCES FOR THE COLLEGE CLASSROOM

American Mathematical Soc. **Mathematics for Social Justice offers a collection of resources for mathematics faculty interested in incorporating questions of social justice into their classrooms. The book begins with a series of essays from instructors experienced in integrating social justice themes into their pedagogy; these essays contain political and pedagogical motivations as well as nuts-and-bolts teaching advice. The heart of the book is a collection of fourteen classroom-tested modules featuring ready-to-use activities and**

investigations for the college mathematics classroom. The mathematical tools and techniques used are relevant to a wide variety of courses including college algebra, math for the liberal arts, calculus, differential equations, discrete mathematics, geometry, financial mathematics, and combinatorics. The social justice themes include human trafficking, income inequality, environmental justice, gerrymandering, voting methods, and access to education. The volume editors are leaders of the national movement to include social justice material into mathematics teaching. Gizem Karaali is Associate Professor of Mathematics at Pomona College. She is one of the founding editors of The Journal of Humanistic Mathematics, and an associate editor for The Mathematical Intelligencer and Numeracy ; she also serves on the editorial board of the MAA's Carus Mathematical Monographs. Lily Khadjavi is Associate Professor of Mathematics at Loyola Marymount University and is a past co-chair of the Infinite Possibilities Conference. She has served on the boards of Building Diversity in Science, the Barbara Jordan-Bayard Rustin Coalition, and the Harvard Gender and Sexuality Caucus.

SEVERAL COMPLEX VARIABLES AND COMPLEX GEOMETRY, PART III

American Mathematical Soc.

AVIATION STRUCTURAL MECHANIC S 3 & 2

CHOICE

PUBLICATION OF THE ASSOCIATION OF COLLEGE AND RESEARCH LIBRARIES, A DIVISION OF THE AMERICAN LIBRARY ASSOCIATION

QUANTUM INFORMATION SCIENCE AND ITS CONTRIBUTIONS TO MATHEMATICS

AMERICAN MATHEMATICAL SOCIETY SHORT COURSE, JANUARY 3-4, 2009, WASHINGTON, DC

American Mathematical Soc. This volume is based on lectures delivered at the 2009 AMS Short Course on Quantum Computation and Quantum Information, held January 3-4, 2009, in Washington, D.C. Part I of this volume consists of two papers giving introductory surveys of many of the important topics in the newly emerging field of quantum computation and quantum information, i.e., quantum information science (QIS). The first paper discusses many of the fundamental concepts in QIS and ends with the curious and counter-intuitive phenomenon of entanglement concentration. The second gives an introductory survey of quantum error correction and fault tolerance, QIS's first line of defense against quantum decoherence. Part II consists of four papers illustrating how QIS research is currently contributing to the development of new research directions in mathematics. The first paper illustrates how differential geometry can be a fundamental research tool for the development of compilers for quantum computers. The second paper gives a survey of many of the connections between quantum topology and quantum computation. The last two papers give an overview of the new and emerging field of quantum knot theory, an interdisciplinary research field connecting quantum computation and knot theory. These two papers illustrate surprising connections with a number of other fields of mathematics. In the appendix, an introductory survey article is also provided for those readers unfamiliar with quantum mechanics.

BRIDGE TO ABSTRACT MATHEMATICS

American Mathematical Soc. A Bridge to Abstract Mathematics will prepare the mathematical novice to explore the universe of abstract mathematics. Mathematics is a science that concerns theorems that must be proved within the constraints of a logical system of axioms and definitions rather than theories that must be tested, revised, and retested. Readers will learn how to read mathematics beyond popular computational calculus courses. Moreover, readers will learn how to construct their own proofs. The book is intended as the primary text for an introductory course in proving theorems, as well as for self-study or as a reference. Throughout the text, some pieces (usually proofs) are left as exercises. Part V gives hints to help students find good approaches to the exercises. Part I introduces the language of mathematics and the methods of proof. The mathematical content of Parts II through IV were chosen so as not to seriously overlap the standard mathematics major. In Part II, students study sets, functions, equivalence and order relations, and cardinality. Part III concerns algebra. The goal is to prove that the real numbers form the unique, up to isomorphism, ordered field with the least upper bound. In the process, we construct the real numbers starting with the natural numbers. Students will be prepared for an abstract linear algebra or modern algebra course. Part IV studies analysis. Continuity and differentiation are considered in the context of time scales (nonempty, closed subsets of the real numbers). Students will be prepared for advanced calculus and general topology courses. There is a lot of room for instructors to skip and choose topics from among those that are presented.

CATEGORICITY

American Mathematical Soc. **Modern model theory began with Morley's categoricity theorem: A countable first-order theory that has a unique (up to isomorphism) model in one uncountable cardinal (i.e., is categorical in cardinality) if and only if the same holds in all uncountable cardinals. Over the last 35 years Shelah made great strides in extending this result to infinitary logic, where the basic tool of compactness fails. He invented the notion of an Abstract Elementary Class to give a unifying semantic account of theories in first-order, infinitary logic and with some generalized quantifiers. Zilber developed similar techniques of infinitary model theory to study complex exponentiation. This book provides the first unified and systematic exposition of this work. The many examples stretch from pure model theory to module theory and covers of Abelian varieties. Assuming only a first course in model theory, the book expounds eventual categoricity results (for classes with amalgamation) and categoricity in excellent classes. Such crucial tools as Ehrenfeucht - Mostowski models, Galois types, tameness, omitting-types theorems, multi-dimensional amalgamation, atomic types, good sets, weak diamonds, and excellent classes are developed completely and methodically. The (occasional) reliance on extensions of basic set theory is clearly laid out. The book concludes with a set of open problems.**

LIVING PROOF

STORIES OF RESILIENCE ALONG THE MATHEMATICAL JOURNEY

Wow! This is a powerful book that addresses a long-standing elephant in the mathematics room. Many people learning math ask ``Why is math so hard for me while everyone else understands it?'' and ``Am I good enough to succeed in math?'' In answering these questions the book shares personal stories from many now-accomplished mathematicians affirming that ``You are not alone; math is hard for everyone'' and ``Yes; you are good enough.'' Along the way the book addresses other issues such as biases and prejudices that mathematicians encounter, and it provides inspiration and emotional support for mathematicians ranging from the experienced professor to the struggling mathematics student. -- Michael Dorff, MAA President This book is a remarkable collection of personal reflections on what it means to be, and to become, a mathematician. Each story reveals a unique and refreshing understanding of the barriers erected by our cultural focus on ``math is hard.'' Indeed, mathematics is hard, and so are many other things--as Stephen Kennedy points out in his cogent introduction. This collection of essays offers inspiration to students of mathematics and to mathematicians at every career stage. --Jill Pipher, AMS President This book is published in cooperation with the Mathematical Association of America.

MOLECULAR ELECTRONICS MATERIALS, DEVICES AND APPLICATIONS

Springer Science & Business Media **How to develop innovative architectures based on emerging molecular devices? The simple yet ambitious objective of Molecular Electronics Materials, Devices and Applications is to give the reader the necessary information to understand the challenges and opportunities of this recent field of research. In order to provide a good overview and understanding, the main molecular devices are first presented. A complete set of presentation and discussion of the actual molecular architectures follows. Nevertheless, another goal of Molecular Electronics Materials, Devices and Applications is also to promote a practical approach. As a starting point for future developments, a pragmatic methodology for VHDL-AMS device modelling and circuit design based on experimental data is then proposed. It includes an original fault tolerant memory architecture based on molecular electronics.**

MATHEMATICS EVERYWHERE

American Mathematical Soc. **Mathematics is all around us. Often we do not realize it, though. Mathematics Everywhere is a collection of presentations on the role of mathematics in everyday life, through science, technology, and culture. The common theme is the unique position of mathematics as the art of pure thought and at the same time as a universally applicable science. The authors are renowned mathematicians; their presentations cover a wide range of topics. From compact discs to the stock exchange, from computer tomography to traffic routing, from electronic money to climate change, they make the ``math inside'' understandable and enjoyable. An additional attractive feature is the leisurely treatment of some hot topics that have gained prominence in recent years, such as Fermat's Theorem, Kepler's packing problem, and the solution of the Poincare Conjecture. Or maybe you have heard about the Nash equilibrium (of ``A Beautiful Mind'' fame), or the strange future of quantum computers, and want to know what it is all about? Well, open the book and take an up-to-date trip into the fascinating world of the mathematics all around us.**

HUMAN-COMPUTER INTERACTION – INTERACT 2017

16TH IFIP TC 13 INTERNATIONAL CONFERENCE, MUMBAI, INDIA, SEPTEMBER 25–29, 2017, PROCEEDINGS, PART III

Springer The four-volume set LNCS 10513—10516 constitutes the proceedings of the 16th IFIP TC 13 International Conference on Human-Computer Interaction, INTERACT 2017, held in Mumbai, India, in September 2017. The total of 68 papers presented in these books was carefully reviewed and selected from 221 submissions. The contributions are organized in topical sections named: Part I: adaptive design and mobile applications; aging and disabilities; assistive technology for blind users; audience engagement; co-design studies; cultural differences and communication technology; design rationale and camera-control. Part II: digital inclusion; games; human perception, cognition and behavior; information on demand, on the move, and gesture interaction; interaction at the workplace; interaction with children. Part III: mediated communication in health; methods and tools for user interface evaluation; multi-touch interaction; new interact ion techniques; personalization and visualization; persuasive technology and rehabilitation; and pointing and target selection.

4-MANIFOLDS AND KIRBY CALCULUS

American Mathematical Soc. Since the early 1980s, there has been an explosive growth in 4-manifold theory, particularly due to the influx of interest and ideas from gauge theory and algebraic geometry. This book offers an exposition of the subject from the topological point of view. It bridges the gap to other disciplines and presents classical but important topological techniques that have not previously appeared in the literature. Part I of the text presents the basics of the theory at the second-year graduate level and offers an overview of current research. Part II is devoted to an exposition of Kirby calculus, or handlebody theory on 4-manifolds. It is both elementary and comprehensive. Part III offers in-depth treatments of a broad range of topics from current 4-manifold research. Topics include branched coverings and the geography of complex surfaces, elliptic and Lefschetz fibrations, h-cobordisms, symplectic 4-manifolds, and Stein surfaces. The authors present many important applications. The text is supplemented with over 300 illustrations and numerous exercises, with solutions given in the book. I greatly recommend this wonderful book to any researcher in 4-manifold topology for the novel ideas, techniques, constructions, and computations on the topic, presented in a very fascinating way. I think really that every student, mathematician, and researcher interested in 4-manifold topology, should own a copy of this beautiful book. --Zentralblatt MATH This book gives an excellent introduction into the theory of 4-manifolds and can be strongly recommended to beginners in this field ... carefully and clearly written; the authors have evidently paid great attention to the presentation of the material ... contains many really pretty and interesting examples and a great number of exercises; the final chapter is then devoted to solutions of some of these ... this type of presentation makes the subject more attractive and its study easier. --European Mathematical Society Newsletter

LIVESTOCK MANDATORY PRICE REPORTING SYSTEM

REPORT TO THE SECRETARY OF AGRICULTURE

COMPUTATIONAL SCIENCE -- ICCS 2005

5TH INTERNATIONAL CONFERENCE, ATLANTA, GA, USA, MAY 22-25, 2005, PROCEEDINGS, PART III

Springer The Fifth International Conference on Computational Science (ICCS 2005) held in Atlanta, Georgia, USA, May 22–25, 2005, continued in the tradition of p- vious conferences in the series: ICCS 2004 in Krakow, Poland; ICCS 2003 held simultaneously at two locations, in Melbourne, Australia and St. Petersburg, Russia; ICCS 2002 in Amsterdam, The Netherlands; and ICCS 2001 in San Francisco, California, USA. Computational science is rapidly maturing as a mainstream discipline. It is central to an ever-expanding variety of ?elds in which computational methods and tools enable new discoveries with greater accuracy and speed. ICCS 2005 wasorganizedasaforumforscientistsfromthecoredisciplinesofcomputational science and numerous application areas to discuss and exchange ideas, results, and future directions. ICCS participants included researchers from many app- cation domains, including those interested in advanced computational methods for physics, chemistry, life sciences, engineering, economics and ?nance, arts and humanities, as well as computer system vendors and software developers. The primary objectives of this conference were to discuss problems and solutions in allareas,toidentifynewissues,toshapefuturedirectionsofresearch,andtohelp users apply various advanced computational techniques. The event highlighted recent developments in algorithms, computational kernels, next generation c- puting systems, tools, advanced numerical methods, data-driven systems, and emerging application

?elds, such as complex systems, ?nance, bioinformatics, computational aspects of wireless and mobile networks, graphics, and hybrid computation.

ENCYCLOPAEDIA OF MATHEMATICS

REACTION-DIFFUSION EQUATION - STIRLING INTERPOLATION FORMULA

Springer Science & Business Media **This ENCYCLOPAEDIA OF MATHEMATICS aims to be a reference work for all parts of mathe matics. It is a translation with updates and editorial comments of the Soviet Mathematical Encyclopaedia published by 'Soviet Encyclopaedia Publishing House' in five volumes in 1977-1985. The annotated translation consists of ten volumes including a special index volume. There are three kinds of articles in this ENCYCLOPAEDIA. First of all there are survey-type articles dealing with the various main directions in mathematics (where a rather fine subdivi sion has been used). The main requirement for these articles has been that they should give a reasonably complete up-to-date account of the current state of affairs in these areas and that they should be maximally accessible. On the whole, these articles should be understandable to mathematics students in their first specialization years, to graduates from other mathematical areas and, depending on the specific subject, to specialists in other domains of science, en gineers and teachers of mathematics. These articles treat their material at a fairly general level and aim to give an idea of the kind of problems, techniques and concepts involved in the area in question. They also contain background and motivation rather than precise statements of precise theorems with detailed definitions and technical details on how to carry out proofs and constructions. The second kind of article, of medium length, contains more detailed concrete problems, results and techniques.**

GUIDANCE SPECIFYING MANAGEMENT MEASURES FOR SOURCES OF NONPOINT POLLUTION IN COASTAL WATERS

ISSUED UNDER THE AUTHORITY OF SECTION 6217(G) OF THE COASTAL ZONE ACT REAUTHORIZATION AMENDMENTS OF 1990

MACHINERY'S REFERENCE SERIES

GAME THEORY, ALIVE

American Mathematical Soc. **We live in a highly connected world with multiple self-interested agents interacting and myriad opportunities for conflict and cooperation. The goal of game theory is to understand these opportunities. This book presents a rigorous introduction to the mathematics of game theory without losing sight of the joy of the subject. This is done by focusing on theoretical highlights (e.g., at least six Nobel Prize winning results are developed from scratch) and by presenting exciting connections of game theory to other fields such as computer science (algorithmic game theory), economics (auctions and matching markets), social choice (voting theory), biology (signaling and evolutionary stability), and learning theory. Both classical topics, such as zero-sum games, and modern topics, such as sponsored search auctions, are covered. Along the way, beautiful mathematical tools used in game theory are introduced, including convexity, fixed-point theorems, and probabilistic arguments. The book is appropriate for a first course in game theory at either the undergraduate or graduate level, whether in mathematics, economics, computer science, or statistics. The importance of game-theoretic thinking transcends the academic setting—for every action we take, we must consider not only its direct effects, but also how it influences the incentives of others.**

DSSSB PGT COMMERCE BUSINESS STUDIES & INTERNATIONAL BUSINESS PART II - BOOK

DSSSB PGT COMMERCE BOOK FOR BUSINESS STUDIES & INTERNATIONAL BUSINESS PART II - BOOK

Innovative Institute

TITU ANDREESCU AND MARK SAUL

American Mathematical Soc. **This book starts with simple arithmetic inequalities and builds to sophisticated inequality results such as the Cauchy-Schwarz and Chebyshev inequalities. Nothing beyond high school algebra is required of the student. The exposition is lean. Most of the learning occurs as the student engages in the problems posed in each chapter. And the learning is not "linear". The central topic of inequalities is linked to others in mathematics. Often these topics relate to much more than algebraic inequalities. There are**

also "secret" pathways through the book. Each chapter has a subtext, a theme which prepares the student for learning other mathematical topics, concepts, or habits of mind. For example, the early chapters on the arithmetic mean/geometric mean inequality show how very simple observations can be leveraged to yield useful and interesting results. Later chapters give examples of how one can generalize a mathematical statement. The chapter on the Cauchy-Schwarz inequality provides an introduction to vectors as mathematical objects. And there are many other secret pathways that the authors hope the reader will discover—and follow. In the interest of fostering a greater awareness and appreciation of mathematics and its connections to other disciplines and everyday life, MSRI and the AMS are publishing books in the Mathematical Circles Library series as a service to young people, their parents and teachers, and the mathematics profession.

PARTIAL DIFFERENTIAL OPERATORS

PROCEEDINGS OF ELAM VIII, HELD IN RIO DE JANEIRO, JULY 14-25, 1986

Springer **The Latin American School of Mathematics (ELAM) is one of the most important mathematical events in Latin America. It has been held every other year since 1968 in a different country of the region, and its theme varies according to the areas of interest of local research groups. The subject of the 1986 school was Partial Differential Equations with emphasis on Microlocal Analysis, Scattering Theory and the applications of Nonlinear Analysis to Elliptic Equations and Hamiltonian Systems.**

A DECADE OF THE BERKELEY MATH CIRCLE

THE AMERICAN EXPERIENCE

American Mathematical Soc. **Many mathematicians have been drawn to mathematics through their experience with math circles: extracurricular programs exposing teenage students to advanced mathematical topics and a myriad of problem solving techniques and inspiring in them a lifelong love for mathematics. Founded in 1998, the Berkeley Math Circle (BMC) is a pioneering model of a U.S. math circle, aspiring to prepare our best young minds for their future roles as mathematics leaders. Over the last decade, 50 instructors--from university professors to high school teachers to business tycoons--have shared their passion for mathematics by delivering more than 320 BMC sessions full of mathematical challenges and wonders. Based on a dozen of these sessions, this book encompasses a wide variety of enticing mathematical topics: from inversion in the plane to circle geometry; from combinatorics to Rubik's cube and abstract algebra; from number theory to mass point theory; from complex numbers to game theory via invariants and monovariants. The treatments of these subjects encompass every significant method of proof and emphasize ways of thinking and reasoning via 100 problem solving techniques. Also featured are 300 problems, ranging from beginner to intermediate level, with occasional peaks of advanced problems and even some open questions. The book presents possible paths to studying mathematics and inevitably falling in love with it, via teaching two important skills: thinking creatively while still ``obeying the rules,'' and making connections between problems, ideas, and theories. The book encourages you to apply the newly acquired knowledge to problems and guides you along the way, but rarely gives you ready answers. ``Learning from our own mistakes'' often occurs through discussions of non-proofs and common problem solving pitfalls. The reader has to commit to mastering the new theories and techniques by ``getting your hands dirty'' with the problems, going back and reviewing necessary problem solving techniques and theory, and persistently moving forward in the book. The mathematical world is huge: you'll never know everything, but you'll learn where to find things, how to connect and use them. The rewards will be substantial. In the interest of fostering a greater awareness and appreciation of mathematics and its connections to other disciplines and everyday life, MSRI and the AMS are publishing books in the Mathematical Circles Library series as a service to young people, their parents and teachers, and the mathematics profession.**