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## LIUUCT - AXEL KAYLYN

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The Definitive Guide to File System Analysis: Key Concepts and Hands-on Techniques Most digital evidence is stored within the computer's file system, but understanding how file systems work is one of the most technically challenging concepts for a digital investigator because there exists little documentation. Now, security expert Brian Carrier has written the definitive reference for everyone who wants to understand and be able to testify about how file system analysis is performed. Carrier begins with an overview of investigation and computer foundations and then gives an authoritative, comprehensive, and illustrated overview of contemporary volume and file systems: Crucial information for discovering hidden evidence, recovering deleted data, and validating your tools. Along the way, he describes data struc-

tures, analyzes example disk images, provides advanced investigation scenarios, and uses today's most valuable open source file system analysis tools—including tools he personally developed. Coverage includes Preserving the digital crime scene and duplicating hard disks for "dead analysis" Identifying hidden data on a disk's Host Protected Area (HPA) Reading source data: Direct versus BIOS access, dead versus live acquisition, error handling, and more Analyzing DOS, Apple, and GPT partitions; BSD disk labels; and Sun Volume Table of Contents using key concepts, data structures, and specific techniques Analyzing the contents of multiple disk volumes, such as RAID and disk spanning Analyzing FAT, NTFS, Ext2, Ext3, UFS1, and UFS2 file systems using key concepts, data structures, and specific techniques Finding evidence: File metadata, recovery of deleted files, data hiding locations, and

more Using The Sleuth Kit (TSK), Autopsy Forensic Browser, and related open source tools When it comes to file system analysis, no other book offers this much detail or expertise. Whether you're a digital forensics specialist, incident response team member, law enforcement officer, corporate security specialist, or auditor, this book will become an indispensable resource for forensic investigations, no matter what analysis tools you use.

"The security of information systems has not improved at a rate consistent with the growth and sophistication of the attacks being made against them. To address this problem, we must improve the underlying strategies and techniques used to create our systems. Specifically, we must build security in from the start, rather than append it as an afterthought. That's the point of *Secure Coding in C and C++*. In careful detail, this book shows software developers how to build high-quality systems that are less vulnerable to costly and even catastrophic attack. It's a book that every developer should read before the start of any serious project." --Frank Abagnale, author, lecturer, and leading consultant on fraud prevention and secure documents

Learn the Root Causes of Software Vulnerabilities and How to Avoid Them Commonly exploited software vulnerabilities are usually caused by avoidable software defects. Having analyzed nearly 18,000 vulnerability reports over the past ten years, the CERT/Coordination Center (CERT/CC) has determined that a relatively small number of root causes account for most of them. This book identifies and explains these causes and shows the steps that can be taken to prevent exploitation. Moreover, this book encourages programmers to adopt security best practices and develop a security

mindset that can help protect software from tomorrow's attacks, not just today's. Drawing on the CERT/CC's reports and conclusions, Robert Seacord systematically identifies the program errors most likely to lead to security breaches, shows how they can be exploited, reviews the potential consequences, and presents secure alternatives. Coverage includes technical detail on how to improve the overall security of any C/C++ application Thwart buffer overflows and stack-smashing attacks that exploit insecure string manipulation logic Avoid vulnerabilities and security flaws resulting from the incorrect use of dynamic memory management functions Eliminate integer-related problems: integer overflows, sign errors, and truncation errors Correctly use formatted output functions without introducing format-string vulnerabilities Avoid I/O vulnerabilities, including race conditions

*Secure Coding in C and C++* presents hundreds of examples of secure code, insecure code, and exploits, implemented for Windows and Linux. If you're responsible for creating secure C or C++ software--or for keeping it safe--no other book offers you this much detailed, expert assistance.

"From nothing I have created a new different world," wrote János Bolyai to his father, Wolfgang Bolyai, on November 3, 1823, to let him know his discovery of non-Euclidean geometry, as we call it today. The results of Bolyai and the co-discoverer, the Russian Lobachevskii, changed the course of mathematics, opened the way for modern physical theories of the twentieth century, and had an impact on the history of human culture. The papers in this volume, which commemorates the 200th anniversary of the birth of János Bolyai, were written by leading scientists of non-Euclidean geometry, its history, and its applications.

Some of the papers present new discoveries about the life and works of János Bolyai and the history of non-Euclidean geometry, others deal with geometrical axiomatics; polyhedra; fractals; hyperbolic, Riemannian and discrete geometry; tilings; visualization; and applications in physics.

Explains geometric theories and shows many examples.

A practical guide for meeting the challenges of planning and designing a network Network design has to be logical and efficient, decisions have to be made about what services are needed, and security concerns must be addressed. Focusing on general principles, this book will help make the process of setting up, configuring, and maintaining a network much easier. It outlines proven procedures for working in a global community of networked machines, and provides practical illustrations of technical specifics. Readers will also find broad coverage of Linux and other Unix versions, Windows(r), Macs, and mainframes. The author includes discussions on the social and ethical aspects of system administration.

Digital Forensic Evidence Examination focuses on the scientific basis for analysis, interpretation, attribution, and reconstruction of digital forensic evidence in a legal context. It defines the bounds of Information Physics as it affects digital forensics and introduces a new model of the overall processes associated with the use of such evidence in legal matters. It then reviews and discusses analysis, interpretation, attribution, and reconstruction issues, discusses tools and methodologies and their limits, and adds a short perspective for the future.

Finally a self-contained, one volume, graduate-level algebra text that is readable

by the average graduate student and flexible enough to accommodate a wide variety of instructors and course contents. The guiding principle throughout is that the material should be presented as general as possible, consistent with good pedagogy. Therefore it stresses clarity rather than brevity and contains an extraordinarily large number of illustrative exercises.

Solutions Manual for the 36-week, geometry course. An essential presentation of Geometry: Seeing, Doing, Understanding exercise solutions: Helps the student with understanding all the answers from exercises in the student book Develops a deeper competency with geometry by encouraging students to analyze and apply the whole process Provides additional context for the concepts included in the course This Solutions Manual provides more than mere answers to problems, explaining and illustrating the process of the equations, as well as identifying the answers for all exercises in the course, including mid-term and final reviews.

Foundations of Geometry Addison-Wesley Longman

There's a lot we don't know, which means that there are a lot of possibilities that are, epistemically speaking, open. What these epistemic possibilities are, and how we understand the semantics of epistemic modals, are explored here through a variety of philosophical approaches.

Foundations of Geometry, Second Edition is written to help enrich the education of all mathematics majors and facilitate a smooth transition into more advanced mathematics courses. The text also implements the latest national standards and recommendations regarding geometry for the preparation of high school mathematics teachers--and en-

courages students to make connections between their college courses and classes they will later teach. This text's coverage begins with Euclid's Elements, lays out a system of axioms for geometry, and then moves on to neutral geometry, Euclidian and hyperbolic geometries from an axiomatic point of view, and then non-Euclidean geometry. Good proof-writing skills are emphasized, along with a historical development of geometry. The Second Edition streamlines and reorganizes material in order to reach coverage of neutral geometry as early as possible, adds more exercises throughout, and facilitates use of the open-source software Geogebra. This text is ideal for an undergraduate course in axiomatic geometry for future high school geometry teachers, or for any student who has not yet encountered upper-level math, such as real analysis or abstract algebra. It assumes calculus and linear algebra as prerequisites.

Differential geometry has a long, wonderful history it has found relevance in areas ranging from machinery design of the classification of four-manifolds to the creation of theories of nature's fundamental forces to the study of DNA. This book studies the differential geometry of surfaces with the goal of helping students make the transition from the compartmentalized courses in a standard university curriculum to a type of mathematics that is a unified whole, it mixes geometry, calculus, linear algebra, differential equations, complex variables, the calculus of variations, and notions from the sciences. Differential geometry is not just for mathematics majors, it is also for students in engineering and the sciences. Into the mix of these ideas comes the opportunity to visualize concepts through the use of computer algebra systems such as Maple. The book empha-

sizes that this visualization goes hand-in-hand with the understanding of the mathematics behind the computer construction. Students will not only "see" geodesics on surfaces, but they will also see the effect that an abstract result such as the Clairaut relation can have on geodesics. Furthermore, the book shows how the equations of motion of particles constrained to surfaces are actually types of geodesics. Students will also see how particles move under constraints. The book is rich in results and exercises that form a continuous spectrum, from those that depend on calculation to proofs that are quite abstract.

Organic chemistry is not merely a compilation of principles, but rather, it is a disciplined method of thought and analysis. Success in organic chemistry requires mastery in two core aspects: fundamental concepts and the skills needed to apply those concepts and solve problems. Readers must learn to become proficient at approaching new situations methodically, based on a repertoire of skills. These skills are vital for successful problem solving in organic chemistry. Existing textbooks provide extensive coverage of, the principles, but there is far less emphasis on the skills needed to actually solve problems.

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Presenting unified coverage of the design and modeling of smart micro- and macrosystems, this book addresses fabrication issues and outlines the challenges faced by engineers working with smart sensors in a variety of applications. Part I deals with the fundamental concepts of a typical smart system and its constituent components. Preliminary fabrica-

tion and characterization concepts are introduced before design principles are discussed in detail. Part III presents a comprehensive account of the modeling of smart systems, smart sensors and actuators. Part IV builds upon the fundamental concepts to analyze fabrication techniques for silicon-based MEMS in more detail. Practicing engineers will benefit from the detailed assessment of applications in communications technology, aerospace, biomedical and mechanical engineering. The book provides an essential reference or textbook for graduates following a course in smart sensors, actuators and systems.

Elementary Number Theory and Its Applications is noted for its outstanding exercise sets, including basic exercises, exercises designed to help students explore key concepts, and challenging exercises. Computational exercises and computer projects are also provided. In addition to years of use and professor feedback, the fifth edition of this text has been thoroughly checked to ensure the quality and accuracy of the mathematical content and the exercises. The blending of classical theory with modern applications is a hallmark feature of the text. The Fifth Edition builds on this strength with new examples and exercises, additional applications and increased cryptology coverage. The author devotes a great deal of attention to making this new edition up-to-date, incorporating new results and discoveries in number theory made in the past few years.

A 2001 graduate text on modal logic, a field which has caught the attention of computer scientists, economists and computational linguists.

Handbook of Knowledge Representation describes the essential foundations of Knowledge Representation, which lies at

the core of Artificial Intelligence (AI). The book provides an up-to-date review of twenty-five key topics in knowledge representation, written by the leaders of each field. It includes a tutorial background and cutting-edge developments, as well as applications of Knowledge Representation in a variety of AI systems. This handbook is organized into three parts. Part I deals with general methods in Knowledge Representation and reasoning and covers such topics as classical logic in Knowledge Representation; satisfiability solvers; description logics; constraint programming; conceptual graphs; nonmonotonic reasoning; model-based problem solving; and Bayesian networks. Part II focuses on classes of knowledge and specialized representations, with chapters on temporal representation and reasoning; spatial and physical reasoning; reasoning about knowledge and belief; temporal action logics; and nonmonotonic causal logic. Part III discusses Knowledge Representation in applications such as question answering; the semantic web; automated planning; cognitive robotics; multi-agent systems; and knowledge engineering. This book is an essential resource for graduate students, researchers, and practitioners in knowledge representation and AI. \* Make your computer smarter \* Handle qualitative and uncertain information \* Improve computational tractability to solve your problems easily

This book offers a unique opportunity to understand the essence of one of the great thinkers of western civilization. A guided reading of Euclid's Elements leads to a critical discussion and rigorous modern treatment of Euclid's geometry and its more recent descendants, with complete proofs. Topics include the introduction of coordinates, the theory of area, history of the parallel postulate,

the various non-Euclidean geometries, and the regular and semi-regular polyhedra.

Geometry Designed for Understanding Jacobs' Geometry utilizes a clear, conversational, engaging approach to teach your student the concepts, principles, and application of Geometry through practical, real-life application! Harold Jacobs guides your student through Geometry, enabling them to discover the concepts & their applications for themselves in order to develop an understanding of the principles that goes beyond simple memorization to pass a test. Jacobs' unique instructional approach to math means your student: Develops a true understanding of geometric principles Interacts with concepts using real-world examples, ensuring they'll know exactly how to apply the material they are learning to real-life and other academic subjects Is prepared to take their understanding of Geometry concepts outside the math textbook and successfully apply them to higher math courses, sciences, & everyday life's equipped with an understanding of the foundational mathematical concepts of Geometry—and once a student truly understands the concepts in Geometry, they are equipped & prepared for all higher math & sciences! Engaging, Real-World Instruction Understanding both the why and how of Geometry is foundational to your student's success in high school and college. Jacobs' Geometry provides students with a clear and thorough understanding of why concepts work, as well as how they are applied to solve real-world problems. A Top Choice for High School Success & College Prep Jacobs' Geometry has proven its ability to guide students towards success and is still the choice of top teachers and schools. The unique instructional method within Jacobs' Geometry ensures your

student understands both the why and how of Geometry and establishes a strong foundation for higher math & science courses. If your student is planning for college or a STEM career, Jacobs' Geometry ensures they are equipped with the tools they need to succeed! Geometry Student Text Includes: Full Color Illustrations 16 sections, covering deductive reasoning, lines & angles, congruence, inequalities, quadrilaterals, area, triangles, circles, theorems, polygons, geometric solids, and more! Answers to select exercises in the back of the text Flexible based on focus & intensity of course Set I exercises review ideas & concepts from previous lessons to provide ongoing application of material. Set II exercises allow student to apply material from the new lesson Set III exercises provided additional, more challenging problems

Few problems in mathematics have had the status of those posed by David Hilbert in 1900. Mathematicians have made their reputations by solving some of them like Fermat's last theorem, but several remain unsolved including the Riemann Hypotheses, which has eluded all the great minds of this century. A hundred years later, this book takes a fresh look at the problems, the man who set them, and the reasons for their lasting impact on the mathematics of the twentieth century. In this fascinating book, the authors consider what makes this the pre-eminent collection of problems in mathematics, what they tell us about what drives mathematicians, and the nature of reputation, influence and power in the world of modern mathematics. It is written in a clear and entertaining style and will appeal to anyone with interest in mathematics or those mathematicians willing to try their hand at these problems.

This is a challenging problem-solving book in Euclidean geometry, assuming nothing of the reader other than a good deal of courage. Topics covered included cyclic quadrilaterals, power of a point, homothety, triangle centers; along the way the reader will meet such classical gems as the nine-point circle, the Simson line, the symmedian and the mixtilinear incircle, as well as the theorems of Euler, Ceva, Menelaus, and Pascal. Another part is dedicated to the use of complex numbers and barycentric coordinates, granting the reader both a traditional and computational viewpoint of the material. The final part consists of some more advanced topics, such as inversion in the plane, the cross ratio and projective transformations, and the theory of the complete quadrilateral. The exposition is friendly and relaxed, and accompanied by over 300 beautifully drawn figures. The emphasis of this book is placed squarely on the problems. Each chapter contains carefully chosen worked examples, which explain not only the solutions to the problems but also describe in close detail how one would invent the solution to begin with. The text contains a selection of 300 practice problems of varying difficulty from contests around the world, with extensive hints and selected solutions. This book is especially suitable for students preparing for national or international mathematical olympiads or for teachers looking for a text for an honor class.

This book is a text for junior, senior, or first-year graduate courses traditionally titled Foundations of Geometry and/or Non Euclidean Geometry. The first 29 chapters are for a semester or year course on the foundations of geometry. The remaining chapters may then be used for either a regular course or independent study courses. Another possibi-

ty, which is also especially suited for in-service teachers of high school geometry, is to survey the the fundamentals of absolute geometry (Chapters 1 -20) very quickly and begin earnest study with the theory of parallels and isometries (Chapters 21 -30). The text is self-contained, except that the elementary calculus is assumed for some parts of the material on advanced hyperbolic geometry (Chapters 31 -34). There are over 650 exercises, 30 of which are 10-part true-or-false questions. A rigorous ruler-and-compass axiomatic development of the Euclidean and hyperbolic planes, including the classification of the isometries of these planes, is balanced by the discussion about this development. Models, such as Taxicab Geometry, are used extensively to illustrate theory. Historical aspects and alternatives to the selected axioms are prominent. The classical axiom systems of Euclid and Hilbert are discussed, as are axiom systems for three and four-dimensional absolute geometry and Poincaré's system based on rigid motions. The text is divided into three parts. The Introduction (Chapters 1 -4) is to be read as quickly as possible and then used for reference if necessary.

Algorithmic design, especially for hard problems, is more essential for success in solving them than any standard improvement of current computer technologies. Because of this, the design of algorithms for solving hard problems is the core of current algorithmic research from the theoretical point of view as well as from the practical point of view. There are many general text books on algorithmics, and several specialized books devoted to particular approaches such as local search, randomization, approximation algorithms, or heuristics. But there is no textbook that focuses on the design of algorithms for hard computing tasks,

and that systematically explains, combines, and compares the main possibilities for attacking hard algorithmic problems. As this topic is fundamental for computer science, this book tries to close this gap. Another motivation, and probably the main reason for writing this book, is connected to education. The considered area has developed very dynamically in recent years and the research on this topic discovered several profound results, new concepts, and new methods. Some of the achieved contributions are so fundamental that one can speak about paradigms which should be included in the education of every computer science student. Unfortunately, this is very far from reality. This is because these paradigms are not sufficiently known in the computer science community, and so they are insufficiently communicated to students and practitioners.

Anion recognition plays a critical role in a range of biological processes, and a variety of receptors and carriers can be found throughout the natural world. Chemists working in the area of supramolecular chemistry have created a range of anion receptors, drawing inspiration from nature as well as their own inventive processes. This book traces the origins of anion recognition chemistry as a unique sub-field in supramolecular chemistry while illustrating the basic approaches currently being used to effect receptor design. The combination of biological overview and summary of current synthetic approaches provides a coverage that is both comprehensive and comprehensible. First, the authors detail the key design motifs that have been used to generate synthetic receptors and which are likely to provide the basis for further developments. They also highlight briefly some of the features that are

present in naturally occurring anion recognition and transport systems and summarise the applications of anion recognition chemistry. Providing as it does a detailed review for practitioners in the field and a concise introduction to the topic for newcomers, *Anion Receptor Chemistry* reflects the current state of the art. Fully referenced and illustrated in colour, it is a welcome addition to the literature.

This book provides an inquiry-based introduction to advanced Euclidean geometry. It utilizes dynamic geometry software, specifically GeoGebra, to explore the statements and proofs of many of the most interesting theorems in the subject. Topics covered include triangle centers, inscribed, circumscribed, and escribed circles, medial and orthic triangles, the nine-point circle, duality, and the theorems of Ceva and Menelaus, as well as numerous applications of those theorems. The final chapter explores constructions in the Poincare disk model for hyperbolic geometry. The book can be used either as a computer laboratory manual to supplement an undergraduate course in geometry or as a stand-alone introduction to advanced topics in Euclidean geometry. The text consists almost entirely of exercises (with hints) that guide students as they discover the geometric relationships for themselves. First the ideas are explored at the computer and then those ideas are assembled into a proof of the result under investigation. The goals are for the reader to experience the joy of discovering geometric relationships, to develop a deeper understanding of geometry, and to encourage an appreciation for the beauty of Euclidean geometry.

A TRANSITION TO ADVANCED MATHEMATICS, 7e, International Edition helps students make the transition from calcu-



lus to more proofs-oriented mathematical study. The most successful text of its kind, the 7th edition continues to provide a firm foundation in major concepts needed for continued study and guides students to think and express themselves mathematically—to analyze a situation, extract pertinent facts, and draw appropriate conclusions. The authors place continuous emphasis throughout on improving students' ability to read and write proofs, and on developing their critical awareness for spotting common errors in proofs. Concepts are clearly explained and supported with detailed examples, while abundant and diverse exercises provide thorough practice on both routine and more challenging problems. Students will come away with a solid intuition for the types of mathematical reasoning they'll need to apply in later courses and a better understanding of how mathematicians of all kinds approach and solve problems.

*Abstract Algebra: An Introduction* is set apart by its thematic development and organization. The chapters are organized around two themes: arithmetic and congruence. Each theme is developed first for the integers, then for polynomials, and finally for rings and groups. This enables students to see where many abstract concepts come from, why they are important, and how they relate to one another. New to this edition is a groups first option that enables those who prefer to cover groups before rings to do so easily. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

This open access book focuses on both the theory and practice associated with the tools and approaches for decision-making in the face of deep uncertainty.

It explores approaches and tools supporting the design of strategic plans under deep uncertainty, and their testing in the real world, including barriers and enablers for their use in practice. The book broadens traditional approaches and tools to include the analysis of actors and networks related to the problem at hand. It also shows how lessons learned in the application process can be used to improve the approaches and tools used in the design process. The book offers guidance in identifying and applying appropriate approaches and tools to design plans, as well as advice on implementing these plans in the real world. For decisionmakers and practitioners, the book includes realistic examples and practical guidelines that should help them understand what decisionmaking under deep uncertainty is and how it may be of assistance to them. *Decision Making under Deep Uncertainty: From Theory to Practice* is divided into four parts. Part I presents five approaches for designing strategic plans under deep uncertainty: Robust Decision Making, Dynamic Adaptive Planning, Dynamic Adaptive Policy Pathways, Info-Gap Decision Theory, and Engineering Options Analysis. Each approach is worked out in terms of its theoretical foundations, methodological steps to follow when using the approach, latest methodological insights, and challenges for improvement. In Part II, applications of each of these approaches are presented. Based on recent case studies, the practical implications of applying each approach are discussed in depth. Part III focuses on using the approaches and tools in real-world contexts, based on insights from real-world cases. Part IV contains conclusions and a synthesis of the lessons that can be drawn for designing, applying, and implementing strategic plans under deep uncertainty, as well as

recommendations for future work. The publication of this book has been funded by the Radboud University, the RAND Corporation, Delft University of Technology, and Deltares.

This is an overview of the current state of knowledge along with open problems and perspectives, clarified in such fields as non-standard inferences in description logics, logic of provability, logical dynamics and computability theory. The book includes contributions concerning the role of logic today, including unexpected aspects of contemporary logic and the application of logic. This book will be of interest to logicians and mathematicians in general.

Organic Chemistry is unusual among market-leading texts; it exists only as a brief text and is specifically designed for a one-semester short course in organic chemistry. Its heavy emphasis on applications, increased coverage of basic concepts, thorough problem-solving pedagogy, and comprehensive problem sets address the specific needs of students in this course. "A Closer Look At" features require students to use resources on the Web to expand concepts in the text, applying text content more directly to real-world examples. The HM ClassPrep instructor CD-ROM provides valuable supplemental content in one convenient, portable product. The CD-ROM includes a test bank, Instructor's Resource Manual, and PowerPoint slides of all line art from the text and animations from the student CD-ROM.

Demonstrates relationships between different types of geometry. Provides excellent overview of the foundations and historical evolution of geometrical concepts. Exercises (no solutions). Includes 98 illustrations.

Based on classical principles, this book is

intended for a second course in Euclidean geometry and can be used as a refresher. Each chapter covers a different aspect of Euclidean geometry, lists relevant theorems and corollaries, and states and proves many propositions. Includes more than 200 problems, hints, and solutions. 1968 edition.

Foundations of Geometry Addison-Wesley Longman Foundations of Geometry, Second Edition is written to help enrich the education of all mathematics majors and facilitate a smooth transition into more advanced mathematics courses. The text also implements the latest national standards and recommendations regarding geometry for the preparation of high school mathematics teachers--and encourages students to make connections between their college courses and classes they will later teach. This text's coverage begins with Euclid's Elements, lays out a system of axioms for geometry, and then moves on to neutral geometry, Euclidian and hyperbolic geometries from an axiomatic point of view, and then non-Euclidean geometry. Good proof-writing skills are emphasized, along with a historical development of geometry. The Second Edition streamlines and reorganizes material in order to reach coverage of neutral geometry as early as possible, adds more exercises throughout, and facilitates use of the open-source software Geogebra. This text is ideal for an undergraduate course in axiomatic geometry for future high school geometry teachers, or for any student who has not yet encountered upper-level math, such as real analysis or abstract algebra. It assumes calculus and linear algebra as prerequisites. The Foundations of Geometry Foundations of Geometry Courier Corporation Explains geometric theories and shows many examples. Exploring Advanced Euclidean Ge-

ometry with GeoGebra American Mathematical Soc. This book provides an inquiry-based introduction to advanced Euclidean geometry. It utilizes dynamic geometry software, specifically GeoGebra, to explore the statements and proofs of many of the most interesting theorems in the subject. Topics covered include triangle centers, inscribed, circumscribed, and escribed circles, medial and orthic triangles, the nine-point circle, duality, and the theorems of Ceva and Menelaus, as well as numerous applications of those theorems. The final chapter explores constructions in the Poincare disk model for hyperbolic geometry. The book can be used either as a computer laboratory manual to supplement an undergraduate course in geometry or as a stand-alone introduction to advanced topics in Euclidean geometry. The text consists almost entirely of exercises (with hints) that guide students as they discover the geometric relationships for themselves. First the ideas are explored at the computer and then those ideas are assembled into a proof of the result under investigation. The goals are for the reader to experience the joy of discovering geometric relationships, to develop a deeper understanding of geometry, and to encourage an appreciation for the beauty of Euclidean geometry. Answers to Exercises For Geometry (Solutions Manual) New Leaf Publishing Group Solutions Manual for the 36-week, geometry course. An essential presentation of Geometry: Seeing, Doing, Understanding exercise solutions: Helps the student with understanding all the answers from exercises in the student book Develops a deeper competency with geometry by encouraging students to analyze and apply the whole process Provides additional context for the concepts included in the course This Solutions Manual pro-

vides more than mere answers to problems, explaining and illustrating the process of the equations, as well as identifying the answers for all exercises in the course, including mid-term and final reviews. Axiomatic Geometry American Mathematical Soc. The story of geometry is the story of mathematics itself: Euclidean geometry was the first branch of mathematics to be systematically studied and placed on a firm logical foundation, and it is the prototype for the axiomatic method that lies at the foundation of modern mathematics. It has been taught to students for more than two millennia as a mode of logical thought. This book tells the story of how the axiomatic method has progressed from Euclid's time to ours, as a way of understanding what mathematics is, how we read and evaluate mathematical arguments, and why mathematics has achieved the level of certainty it has. It is designed primarily for advanced undergraduates who plan to teach secondary school geometry, but it should also provide something of interest to anyone who wishes to understand geometry and the axiomatic method better. It introduces a modern, rigorous, axiomatic treatment of Euclidean and (to a lesser extent) non-Euclidean geometries, offering students ample opportunities to practice reading and writing proofs while at the same time developing most of the concrete geometric relationships that secondary teachers will need to know in the classroom. -- P. [4] of cover. Abstract Algebra: An Introduction Cengage Learning Abstract Algebra: An Introduction is set apart by its thematic development and organization. The chapters are organized around two themes: arithmetic and congruence. Each theme is developed first for the integers, then for polynomials, and finally for rings and groups. This enables stu-

dents to see where many abstract concepts come from, why they are important, and how they relate to one another. New to this edition is a groups first option that enables those who prefer to cover groups before rings to do so easily. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Thinking Geometrically: A Survey of Geometries

The Mathematical Association of America

Thinking Geometrically: A Survey of Geometries is a well written and comprehensive survey of college geometry that would serve a wide variety of courses for both mathematics majors and mathematics education majors. Great care and attention is spent on developing visual insights and geometric intuition while stressing the logical structure, historical development, and deep interconnectedness of the ideas. Students with less mathematical preparation than upper-division mathematics majors can successfully study the topics needed for the preparation of high school teachers. There is a multitude of exercises and projects in those chapters developing all aspects of geometric thinking for these students as well as for more advanced students. These chapters include Euclidean Geometry, Axiomatic Systems and Models, Analytic Geometry, Transformational Geometry, and Symmetry. Topics in the other chapters, including Non-Euclidean Geometry, Projective Geometry, Finite Geometry, Differential Geometry, and Discrete Geometry, provide a broader view of geometry. The different chapters are as independent as possible, while the text still manages to highlight the many connections between topics. The text is self-contained, including appendices with the material in Euclid's first book and a high school axiomatic system as

well as Hilbert's axioms. Appendices give brief summaries of the parts of linear algebra and multivariable calculus needed for certain chapters. While some chapters use the language of groups, no prior experience with abstract algebra is presumed. The text will support an approach emphasizing dynamical geometry software without being tied to any particular software.

Differential Geometry and Its Applications

MAA Differential geometry has a long, wonderful history it has found relevance in areas ranging from machinery design of the classification of four-manifolds to the creation of theories of nature's fundamental forces to the study of DNA. This book studies the differential geometry of surfaces with the goal of helping students make the transition from the compartmentalized courses in a standard university curriculum to a type of mathematics that is a unified whole, it mixes geometry, calculus, linear algebra, differential equations, complex variables, the calculus of variations, and notions from the sciences. Differential geometry is not just for mathematics majors, it is also for students in engineering and the sciences. Into the mix of these ideas comes the opportunity to visualize concepts through the use of computer algebra systems such as Maple. The book emphasizes that this visualization goes hand-in-hand with the understanding of the mathematics behind the computer construction. Students will not only "see" geodesics on surfaces, but they will also see the effect that an abstract result such as the Clairaut relation can have on geodesics. Furthermore, the book shows how the equations of motion of particles constrained to surfaces are actually types of geodesics. Students will also see how particles move under constraints. The book is rich in results and exercises that

form a continuous spectrum, from those that depend on calculation to proofs that are quite abstract. *Problems and Solutions in Euclidean Geometry* Courier Corporation Based on classical principles, this book is intended for a second course in Euclidean geometry and can be used as a refresher. Each chapter covers a different aspect of Euclidean geometry, lists relevant theorems and corollaries, and states and proves many propositions. Includes more than 200 problems, hints, and solutions. 1968 edition. *Fundamental Concepts of Geometry* Courier Corporation Demonstrates relationships between different types of geometry. Provides excellent overview of the foundations and historical evolution of geometrical concepts. Exercises (no solutions). Includes 98 illustrations. *The Ant Trap: Rebuilding the Foundations of the Social Sciences* Oxford University Press We live in a world of crowds and corporations, artworks and artifacts, legislatures and languages, money and markets. These are all social objects - they are made, at least in part, by people and by communities. But what exactly are these things? How are they made, and what is the role of people in making them? In *The Ant Trap*, Brian Epstein rewrites our understanding of the nature of the social world and the foundations of the social sciences. Epstein explains and challenges the three prevailing traditions about how the social world is made. One tradition takes the social world to be built out of people, much as traffic is built out of cars. A second tradition also takes people to be the building blocks of the social world, but focuses on thoughts and attitudes we have toward one another. And a third tradition takes the social world to be a collective projection onto the physical world. Epstein shows that these share critical flaws. Most fundamentally,

all three traditions overestimate the role of people in building the social world: they are overly anthropocentric. Epstein starts from scratch, bringing the resources of contemporary metaphysics to bear. In the place of traditional theories, he introduces a model based on a new distinction between the grounds and the anchors of social facts. Epstein illustrates the model with a study of the nature of law, and shows how to interpret the prevailing traditions about the social world. Then he turns to social groups, and to what it means for a group to take an action or have an intention. Contrary to the overwhelming consensus, these often depend on more than the actions and intentions of group members. *Geometry: Seeing, Doing, Understanding* New Leaf Publishing Group *Geometry Designed for Understanding* Jacobs' *Geometry* utilizes a clear, conversational, engaging approach to teach your student the concepts, principles, and application of Geometry through practical, real-life application! Harold Jacobs guides your student through *Geometry*, enabling them to discover the concepts & their applications for themselves in order to develop an understanding of the principles that goes beyond simple memorization to pass a test. Jacobs' unique instructional approach to math means your student: Develops a true understanding of geometric principles Interacts with concepts using real-world examples, ensuring they'll know exactly how to apply the material they are learning to real-life and other academic subjects Is prepared to take their understanding of *Geometry* concepts outside the math textbook and successfully apply them to higher math courses, sciences, & everyday life Is equipped with an understanding of the foundational mathematical concepts of *Geometry*—and once a student truly un-

derstands the concepts in Geometry, they are equipped & prepared for all higher math & sciences! Engaging, Real-World Instruction Understanding both the why and how of Geometry is foundational to your student's success in high school and college. Jacobs' Geometry provides students with a clear and thorough understanding of why concepts work, as well as how they are applied to solve real-world problems. A Top Choice for High School Success & College Prep Jacobs' Geometry has proven its ability to guide students towards success and is still the choice of top teachers and schools. The unique instructional method within Jacobs' Geometry ensures your student understands both the why and how of Geometry and establishes a strong foundation for higher math & science courses. If your student is planning for college or a STEM career, Jacobs' Geometry ensures they are equipped with the tools they need to succeed! Geometry Student Text Includes: Full Color Illustrations 16 sections, covering deductive reasoning, lines & angles, congruence, inequalities, quadrilaterals, area, triangles, circles, theorems, polygons, geometric solids, and more! Answers to select exercises in the back of the text Flexible based on focus & intensity of course Set I exercises review ideas & concepts from previous lessons to provide ongoing application of material. Set II exercises allow student to apply material from the new lesson Set III exercises provided additional, more challenging problems Secure Coding in C and C++ Pearson Education "The security of information systems has not improved at a rate consistent with the growth and sophistication of the attacks being made against them. To address this problem, we must improve the underlying strategies and techniques used to create our systems. Specifically, we must build secu-

urity in from the start, rather than append it as an afterthought. That's the point of Secure Coding in C and C++. In careful detail, this book shows software developers how to build high-quality systems that are less vulnerable to costly and even catastrophic attack. It's a book that every developer should read before the start of any serious project." --Frank Abagnale, author, lecturer, and leading consultant on fraud prevention and secure documents Learn the Root Causes of Software Vulnerabilities and How to Avoid Them Commonly exploited software vulnerabilities are usually caused by avoidable software defects. Having analyzed nearly 18,000 vulnerability reports over the past ten years, the CERT/Coordination Center (CERT/CC) has determined that a relatively small number of root causes account for most of them. This book identifies and explains these causes and shows the steps that can be taken to prevent exploitation. Moreover, this book encourages programmers to adopt security best practices and develop a security mindset that can help protect software from tomorrow's attacks, not just today's. Drawing on the CERT/CC's reports and conclusions, Robert Seacord systematically identifies the program errors most likely to lead to security breaches, shows how they can be exploited, reviews the potential consequences, and presents secure alternatives. Coverage includes technical detail on how to Improve the overall security of any C/C++ application Thwart buffer overflows and stack-smashing attacks that exploit insecure string manipulation logic Avoid vulnerabilities and security flaws resulting from the incorrect use of dynamic memory management functions Eliminate integer-related problems: integer overflows, sign errors, and truncation errors Correctly use formatted out-

put functions without introducing format-string vulnerabilities Avoid I/O vulnerabilities, including race conditions Secure Coding in C and C++ presents hundreds of examples of secure code, insecure code, and exploits, implemented for Windows and Linux. If you're responsible for creating secure C or C++ software--or for keeping it safe--no other book offers you this much detailed, expert assistance.

**Geometry: Euclid and Beyond** Springer Science & Business Media This book offers a unique opportunity to understand the essence of one of the great thinkers of western civilization. A guided reading of Euclid's *Elements* leads to a critical discussion and rigorous modern treatment of Euclid's geometry and its more recent descendants, with complete proofs. Topics include the introduction of coordinates, the theory of area, history of the parallel postulate, the various non-Euclidean geometries, and the regular and semi-regular polyhedra.

**File System Forensic Analysis** Addison-Wesley Professional The Definitive Guide to File System Analysis: Key Concepts and Hands-on Techniques Most digital evidence is stored within the computer's file system, but understanding how file systems work is one of the most technically challenging concepts for a digital investigator because there exists little documentation. Now, security expert Brian Carrier has written the definitive reference for everyone who wants to understand and be able to testify about how file system analysis is performed. Carrier begins with an overview of investigation and computer foundations and then gives an authoritative, comprehensive, and illustrated overview of contemporary volume and file systems: Crucial information for discovering hidden evidence, recovering deleted data, and validating your tools. Along the way, he

describes data structures, analyzes example disk images, provides advanced investigation scenarios, and uses today's most valuable open source file system analysis tools—including tools he personally developed. Coverage includes Preserving the digital crime scene and duplicating hard disks for "dead analysis" Identifying hidden data on a disk's Host Protected Area (HPA) Reading source data: Direct versus BIOS access, dead versus live acquisition, error handling, and more Analyzing DOS, Apple, and GPT partitions; BSD disk labels; and Sun Volume

**Table of Contents** using key concepts, data structures, and specific techniques Analyzing the contents of multiple disk volumes, such as RAID and disk spanning Analyzing FAT, NTFS, Ext2, Ext3, UFS1, and UFS2 file systems using key concepts, data structures, and specific techniques Finding evidence: File metadata, recovery of deleted files, data hiding locations, and more Using The Sleuth Kit (TSK), Autopsy Forensic Browser, and related open source tools When it comes to file system analysis, no other book offers this much detail or expertise. Whether you're a digital forensics specialist, incident response team member, law enforcement officer, corporate security specialist, or auditor, this book will become an indispensable resource for forensic investigations, no matter what analysis tools you use.

**A Transition to Advanced Mathematics** A TRANSITION TO ADVANCED MATHEMATICS, 7e, International Edition helps students make the transition from calculus to more proofs-oriented mathematical study. The most successful text of its kind, the 7th edition continues to provide a firm foundation in major concepts needed for continued study and guides students to think and express themselves mathematically—to analyze a situation, extract pertinent

facts, and draw appropriate conclusions. The authors place continuous emphasis throughout on improving students' ability to read and write proofs, and on developing their critical awareness for spotting common errors in proofs. Concepts are clearly explained and supported with detailed examples, while abundant and diverse exercises provide thorough practice on both routine and more challenging problems. Students will come away with a solid intuition for the types of mathematical reasoning they'll need to apply in later courses and a better understanding of how mathematicians of all kinds approach and solve problems. *The Foundations of Geometry and the Non-Euclidean Plane* Springer Science & Business Media This book is a text for junior, senior, or first-year graduate courses traditionally titled Foundations of Geometry and/or Non Euclidean Geometry. The first 29 chapters are for a semester or year course on the foundations of geometry. The remaining chapters may then be used for either a regular course or independent study courses. Another possibility, which is also especially suited for in-service teachers of high school geometry, is to survey the the fundamentals of absolute geometry (Chapters 1 -20) very quickly and begin earnest study with the theory of parallels and isometries (Chapters 21 -30). The text is self-contained, except that the elementary calculus is assumed for some parts of the material on advanced hyperbolic geometry (Chapters 31 -34). There are over 650 exercises, 30 of which are 10-part true-or-false questions. A rigorous ruler-and-compass axiomatic development of the Euclidean and hyperbolic planes, including the classification of the isometries of these planes, is balanced by the discussion about this development. Models, such as Taxicab Geometry, are used extensively

to illustrate theory. Historical aspects and alternatives to the selected axioms are prominent. The classical axiom systems of Euclid and Hilbert are discussed, as are axiom systems for three and four-dimensional absolute geometry and Pappus's system based on rigid motions. The text is divided into three parts. The Introduction (Chapters 1 -4) is to be read as quickly as possible and then used for reference if necessary. *Modal Logic* Graph. Darst Cambridge University Press A 2001 graduate text on modal logic, a field which has caught the attention of computer scientists, economists and computational linguists. *Epistemic Modality* Oxford University Press There's a lot we don't know, which means that there are a lot of possibilities that are, epistemically speaking, open. What these epistemic possibilities are, and how we understand the semantics of epistemic modals, are explored here through a variety of philosophical approaches. *Handbook of Knowledge Representation* Elsevier *Handbook of Knowledge Representation* describes the essential foundations of Knowledge Representation, which lies at the core of Artificial Intelligence (AI). The book provides an up-to-date review of twenty-five key topics in knowledge representation, written by the leaders of each field. It includes a tutorial background and cutting-edge developments, as well as applications of Knowledge Representation in a variety of AI systems. This handbook is organized into three parts. Part I deals with general methods in Knowledge Representation and reasoning and covers such topics as classical logic in Knowledge Representation; satisfiability solvers; description logics; constraint programming; conceptual graphs; nonmonotonic reasoning; model-based problem solving; and Bayesian networks. Part II focuses on classes of knowledge and spe-



cialized representations, with chapters on temporal representation and reasoning; spatial and physical reasoning; reasoning about knowledge and belief; temporal action logics; and nonmonotonic causal logic. Part III discusses Knowledge Representation in applications such as question answering; the semantic web; automated planning; cognitive robotics; multi-agent systems; and knowledge engineering. This book is an essential resource for graduate students, researchers, and practitioners in knowledge representation and AI. \* Make your computer smarter \* Handle qualitative and uncertain information \* Improve computational tractability to solve your problems easily

Euclidean and Non-Euclidean Geometries  
Development and History  
Smart Material Systems and MEMS  
Design and Development Methodologies

John Wiley & Sons

Presenting unified coverage of the design and modeling of smart micro- and macrosystems, this book addresses fabrication issues and outlines the challenges faced by engineers working with smart sensors in a variety of applications. Part I deals with the fundamental concepts of a typical smart system and its constituent components. Preliminary fabrication and characterization concepts are introduced before design principles are discussed in detail. Part III presents a comprehensive account of the modeling of smart systems, smart sensors and actuators. Part IV builds upon the fundamental concepts to analyze fabrication techniques for silicon-based MEMS in more detail. Practicing engineers will benefit from the detailed assessment of applications in communications technology, aerospace, biomedical and mechanical engineering. The book provides an essential reference or textbook for graduates following a course in smart sensors, actuators and systems.

Euclidean Geometry

in Mathematical Olympiads  
American Mathematical Soc.

This is a challenging problem-solving book in Euclidean geometry, assuming nothing of the reader other than a good deal of courage. Topics covered included cyclic quadrilaterals, power of a point, homothety, triangle centers; along the way the reader will meet such classical gems as the nine-point circle, the Simson line, the symmedian and the mixtilinear incircle, as well as the theorems of Euler, Ceva, Menelaus, and Pascal. Another part is dedicated to the use of complex numbers and barycentric coordinates, granting the reader both a traditional and computational viewpoint of the material. The final part consists of some more advanced topics, such as inversion in the plane, the cross ratio and projective transformations, and the theory of the complete quadrilateral. The exposition is friendly and relaxed, and accompanied by over 300 beautifully drawn figures. The emphasis of this book is placed squarely on the problems. Each chapter contains carefully chosen worked examples, which explain not only the solutions to the problems but also describe in close detail how one would invent the solution to begin with. The text contains a selection of 300 practice problems of varying difficulty from contests around the world, with extensive hints and selected solutions. This book is especially suitable for students preparing for national or international mathematical olympiads or for teachers looking for a text for an honor class.

The Hilbert Challenge  
Oxford University Press on Demand

Few problems in mathematics have had the status of those posed by David Hilbert in 1900. Mathematicians have made their reputations by solving some of them like Fermat's last theorem, but several remain unsolved including the Riemann Hy-

potheses, which has eluded all the great minds of this century. A hundred years later, this book takes a fresh look at the problems, the man who set them, and the reasons for their lasting impact on the mathematics of the twentieth century. In this fascinating book, the authors consider what makes this the pre-eminent collection of problems in mathematics, what they tell us about what drives mathematicians, and the nature of reputation, influence and power in the world of modern mathematics. It is written in a clear and entertaining style and will appeal to anyone with interest in mathematics or those mathematicians willing to try their hand at these problems. Algebra Springer Science & Business Media Finally a self-contained, one volume, graduate-level algebra text that is readable by the average graduate student and flexible enough to accommodate a wide variety of instructors and course contents. The guiding principle throughout is that the material should be presented as general as possible, consistent with good pedagogy. Therefore it stresses clarity rather than brevity and contains an extraordinarily large number of illustrative exercises. The Foundations of Geometry Prentice Hall For sophomore/junior-level courses in Geometry; especially appropriate for students that will go on to teach high-school mathematics. This text comfortably serves as a bridge between lower-level mathematics courses (calculus and linear algebra) and upper-level courses (real analysis and abstract algebra). It fully implements the latest national standards and recommendations regarding geometry for the preparation of high school mathematics teachers. Foundations of Geometry particularly teaches good proof-writing skills, emphasizes the historical development of geometry, and addresses certain issues concerning the

place of geometry in human culture. Study Guide and Solutions Manual for Organic Chemistry: a Short Course, 10th Ed., Harold Hart, Leslie E. Craine, and David J. Hart Houghton Mifflin College Division Organic Chemistry is unusual among market-leading texts; it exists only as a brief text and is specifically designed for a one-semester short course in organic chemistry. Its heavy emphasis on applications, increased coverage of basic concepts, thorough problem-solving pedagogy, and comprehensive problem sets address the specific needs of students in this course. "A Closer Look At" features require students to use resources on the Web to expand concepts in the text, applying text content more directly to real-world examples. The HM ClassPrep instructor CD-ROM provides valuable supplemental content in one convenient, portable product. The CD-ROM includes a test bank, Instructor's Resource Manual, and PowerPoint slides of all line art from the text and animations from the student CD-ROM. Mathematical Problems from Applied Logic I Logics for the XXIst Century Springer Science & Business Media This is an overview of the current state of knowledge along with open problems and perspectives, clarified in such fields as non-standard inferences in description logics, logic of provability, logical dynamics and computability theory. The book includes contributions concerning the role of logic today, including unexpected aspects of contemporary logic and the application of logic. This book will be of interest to logicians and mathematicians in general. Introductory Computer Forensics A Hands-on Practical Approach Springer This textbook provides an introduction to digital forensics, a rapidly evolving field for solving crimes. Beginning with the basic concepts of computer forensics, each of the

book's 21 chapters focuses on a particular forensic topic composed of two parts: background knowledge and hands-on experience through practice exercises. Each theoretical or background section concludes with a series of review questions, which are prepared to test students' understanding of the materials, while the practice exercises are intended to afford students the opportunity to apply the concepts introduced in the section on background knowledge. This experience-oriented textbook is meant to assist students in gaining a better understanding of digital forensics through hands-on practice in collecting and preserving digital evidence by completing various exercises. With 20 student-directed, inquiry-based practice exercises, students will better understand digital forensic concepts and learn digital forensic investigation techniques. This textbook is intended for upper undergraduate and graduate-level students who are taking digital-forensic related courses or working in digital forensics research. It can also be used by digital forensics practitioners, IT security analysts, and security engineers working in the IT security industry, particular IT professionals responsible for digital investigation and incident handling or researchers working in these related fields as a reference book. Student Solutions Manual for Stewart's Essential Calculus: Early Transcendentals, 2nd Cengage Learning Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version. Student Study Guide and Solutions Manual to accompany Organic Chemistry 2e Binder Ready Version Wiley Organic chemistry is not merely a compilation of principles, but rather, it is a disciplined method of thought and analysis. Success in organic chemistry requires mastery in

two core aspects: fundamental concepts and the skills needed to apply those concepts and solve problems. Readers must learn to become proficient at approaching new situations methodically, based on a repertoire of skills. These skills are vital for successful problem solving in organic chemistry. Existing textbooks provide extensive coverage of, the principles, but there is far less emphasis on the skills needed to actually solve problems. Digital Forensic Evidence Examination Fred Cohen & Associates Digital Forensic Evidence Examination focuses on the scientific basis for analysis, interpretation, attribution, and reconstruction of digital forensic evidence in a legal context. It defines the bounds of Information Physics as it affects digital forensics and introduces a new model of the overall processes associated with the use of such evidence in legal matters. It then reviews and discusses analysis, interpretation, attribution, and reconstruction issues, discusses tools and methodologies and their limits, and adds a short perspective for the future. Anion Receptor Chemistry Royal Society of Chemistry Anion recognition plays a critical role in a range of biological processes, and a variety of receptors and carriers can be found throughout the natural world. Chemists working in the area of supramolecular chemistry have created a range of anion receptors, drawing inspiration from nature as well as their own inventive processes. This book traces the origins of anion recognition chemistry as a unique sub-field in supramolecular chemistry while illustrating the basic approaches currently being used to effect receptor design. The combination of biological overview and summary of current synthetic approaches provides a coverage that is both comprehensive and comprehensible. First, the authors detail the

key design motifs that have been used to generate synthetic receptors and which are likely to provide the basis for further developments. They also highlight briefly some of the features that are present in naturally occurring anion recognition and transport systems and summarise the applications of anion recognition chemistry. Providing as it does a detailed review for practitioners in the field and a concise introduction to the topic for newcomers, *Anion Receptor Chemistry* reflects the current state of the art. Fully referenced and illustrated in colour, it is a welcome addition to the literature.

*Non-Euclidean Geometries* János Bolyai Memorial Volume Springer Science & Business Media "From nothing I have created a new different world," wrote János Bolyai to his father, Wolfgang Bolyai, on November 3, 1823, to let him know his discovery of non-Euclidean geometry, as we call it today. The results of Bolyai and the co-discoverer, the Russian Lobachevskii, changed the course of mathematics, opened the way for modern physical theories of the twentieth century, and had an impact on the history of human culture. The papers in this volume, which commemorates the 200th anniversary of the birth of János Bolyai, were written by leading scientists of non-Euclidean geometry, its history, and its applications. Some of the papers present new discoveries about the life and works of János Bolyai and the history of non-Euclidean geometry, others deal with geometrical axiomatics; polyhedra; fractals; hyperbolic, Riemannian and discrete geometry; tilings; visualization; and applications in physics.

*Elementary Number Theory and Its Applications* Addison-Wesley *Elementary Number Theory and Its Applications* is noted for its outstanding exercise sets, including basic exercises, exercises designed to help stu-

dents explore key concepts, and challenging exercises. Computational exercises and computer projects are also provided. In addition to years of use and professor feedback, the fifth edition of this text has been thoroughly checked to ensure the quality and accuracy of the mathematical content and the exercises. The blending of classical theory with modern applications is a hallmark feature of the text. The Fifth Edition builds on this strength with new examples and exercises, additional applications and increased cryptology coverage. The author devotes a great deal of attention to making this new edition up-to-date, incorporating new results and discoveries in number theory made in the past few years.

*Modern Compiler Implementation in C* Cambridge University Press This new, expanded textbook describes all phases of a modern compiler: lexical analysis, parsing, abstract syntax, semantic actions, intermediate representations, instruction selection via tree matching, dataflow analysis, graph-coloring register allocation, and runtime systems. It includes good coverage of current techniques in code generation and register allocation, as well as functional and object-oriented languages, that are missing from most books. In addition, more advanced chapters are now included so that it can be used as the basis for a two-semester or graduate course. The most accepted and successful techniques are described in a concise way, rather than as an exhaustive catalog of every possible variant. Detailed descriptions of the interfaces between modules of a compiler are illustrated with actual C header files. The first part of the book, *Fundamentals of Compilation*, is suitable for a one-semester first course in compiler design. The second part, *Advanced Topics*, which includes the advanced chapters,

covers the compilation of object-oriented and functional languages, garbage collection, loop optimizations, SSA form, loop scheduling, and optimization for cache-memory hierarchies. Principles of Network and System Administration Wiley A practical guide for meeting the challenges of planning and designing a network Network design has to be logical and efficient, decisions have to be made about what services are needed, and security concerns must be addressed. Focusing on general principles, this book will help make the process of setting up, configuring, and maintaining a network much easier. It outlines proven procedures for working in a global community of networked machines, and provides practical illustrations of technical specifics. Readers will also find broad coverage of Linux and other Unix versions, Windows(r), Macs, and mainframes. The author includes discussions on the social and ethical aspects of system administration. Decision Making under Deep Uncertainty From Theory to Practice Springer This open access book focuses on both the theory and practice associated with the tools and approaches for decisionmaking in the face of deep uncertainty. It explores approaches and tools supporting the design of strategic plans under deep uncertainty, and their testing in the real world, including barriers and enablers for their use in practice. The book broadens traditional approaches and tools to include the analysis of actors and networks related to the problem at hand. It also shows how lessons learned in the application process can be used to improve the approaches and tools used in the design process. The book offers guidance in identifying and applying appropriate approaches and tools to design plans, as well as advice on implementing these plans in the real

world. For decisionmakers and practitioners, the book includes realistic examples and practical guidelines that should help them understand what decisionmaking under deep uncertainty is and how it may be of assistance to them. Decision Making under Deep Uncertainty: From Theory to Practice is divided into four parts. Part I presents five approaches for designing strategic plans under deep uncertainty: Robust Decision Making, Dynamic Adaptive Planning, Dynamic Adaptive Policy Pathways, Info-Gap Decision Theory, and Engineering Options Analysis. Each approach is worked out in terms of its theoretical foundations, methodological steps to follow when using the approach, latest methodological insights, and challenges for improvement. In Part II, applications of each of these approaches are presented. Based on recent case studies, the practical implications of applying each approach are discussed in depth. Part III focuses on using the approaches and tools in real-world contexts, based on insights from real-world cases. Part IV contains conclusions and a synthesis of the lessons that can be drawn for designing, applying, and implementing strategic plans under deep uncertainty, as well as recommendations for future work. The publication of this book has been funded by the Radboud University, the RAND Corporation, Delft University of Technology, and Deltares. Algorithmics for Hard Problems Introduction to Combinatorial Optimization, Randomization, Approximation, and Heuristics Springer Science & Business Media Algorithmic design, especially for hard problems, is more essential for success in solving them than any standard improvement of current computer technologies. Because of this, the design of algorithms for solving hard problems is the core of current algorithmic research

from the theoretical point of view as well as from the practical point of view. There are many general text books on algorithms, and several specialized books devoted to particular approaches such as local search, randomization, approximation algorithms, or heuristics. But there is no textbook that focuses on the design of algorithms for hard computing tasks, and that systematically explains, combines, and compares the main possibilities for attacking hard algorithmic problems. As this topic is fundamental for computer science, this book tries to close this gap. Another motivation, and probably the main reason for writing this book, is connected to education. The considered area has developed very dynamically in recent years and the research on this topic discovered several profound results, new concepts, and new methods. Some of the achieved contributions are so fundamental that one can speak about paradigms which should be included in the education of every computer science student. Unfortunately, this is very far from reality. This is because these paradigms are not sufficiently known in the computer science community, and so they are insufficiently communicated to students and practitioners.

Thinking Geometrically: A Survey of Geometries is a well written and comprehensive survey of college geometry that would serve a wide variety of courses for both mathematics majors and mathematics education majors. Great care and attention is spent on developing visual insights and geometric intuition while stressing the logical structure, historical development, and deep interconnectedness of the ideas. Students with less mathematical preparation than upper-division mathematics majors can successfully study the topics needed for the preparation of high school teachers. There

is a multitude of exercises and projects in those chapters developing all aspects of geometric thinking for these students as well as for more advanced students. These chapters include Euclidean Geometry, Axiomatic Systems and Models, Analytic Geometry, Transformational Geometry, and Symmetry. Topics in the other chapters, including Non-Euclidean Geometry, Projective Geometry, Finite Geometry, Differential Geometry, and Discrete Geometry, provide a broader view of geometry. The different chapters are as independent as possible, while the text still manages to highlight the many connections between topics. The text is self-contained, including appendices with the material in Euclid's first book and a high school axiomatic system as well as Hilbert's axioms. Appendices give brief summaries of the parts of linear algebra and multivariable calculus needed for certain chapters. While some chapters use the language of groups, no prior experience with abstract algebra is presumed. The text will support an approach emphasizing dynamical geometry software without being tied to any particular software.

We live in a world of crowds and corporations, artworks and artifacts, legislatures and languages, money and markets. These are all social objects - they are made, at least in part, by people and by communities. But what exactly are these things? How are they made, and what is the role of people in making them? In *The Ant Trap*, Brian Epstein rewrites our understanding of the nature of the social world and the foundations of the social sciences. Epstein explains and challenges the three prevailing traditions about how the social world is made. One tradition takes the social world to be built out of people, much as traffic is built out of cars. A second tradition also

takes people to be the building blocks of the social world, but focuses on thoughts and attitudes we have toward one another. And a third tradition takes the social world to be a collective projection onto the physical world. Epstein shows that these share critical flaws. Most fundamentally, all three traditions overestimate the role of people in building the social world: they are overly anthropocentric. Epstein starts from scratch, bringing the resources of contemporary metaphysics to bear. In the place of traditional theories, he introduces a model based on a new distinction between the grounds and the anchors of social facts. Epstein illustrates the model with a study of the nature of law, and shows how to interpret the prevailing traditions about the social world. Then he turns to social groups, and to what it means for a group to take an action or have an intention. Contrary to the overwhelming consensus, these often depend on more than the actions and intentions of group members.

The story of geometry is the story of mathematics itself: Euclidean geometry was the first branch of mathematics to be systematically studied and placed on a firm logical foundation, and it is the prototype for the axiomatic method that lies at the foundation of modern mathematics. It has been taught to students for more than two millennia as a mode of logical thought. This book tells the story of how the axiomatic method has progressed from Euclid's time to ours, as a way of understanding what mathematics is, how we read and evaluate mathematical arguments, and why mathematics has achieved the level of certainty it has. It is designed primarily for advanced undergraduates who plan to teach secondary school geometry, but it should

also provide something of interest to anyone who wishes to understand geometry and the axiomatic method better. It introduces a modern, rigorous, axiomatic treatment of Euclidean and (to a lesser extent) non-Euclidean geometries, offering students ample opportunities to practice reading and writing proofs while at the same time developing most of the concrete geometric relationships that secondary teachers will need to know in the classroom. -- P. [4] of cover.

For sophomore/junior-level courses in Geometry; especially appropriate for students that will go on to teach high-school mathematics. This text comfortably serves as a bridge between lower-level mathematics courses (calculus and linear algebra) and upper-level courses (real analysis and abstract algebra). It fully implements the latest national standards and recommendations regarding geometry for the preparation of high school mathematics teachers. Foundations of Geometry particularly teaches good proof-writing skills, emphasizes the historical development of geometry, and addresses certain issues concerning the place of geometry in human culture.

This new, expanded textbook describes all phases of a modern compiler: lexical analysis, parsing, abstract syntax, semantic actions, intermediate representations, instruction selection via tree matching, dataflow analysis, graph-coloring register allocation, and runtime systems. It includes good coverage of current techniques in code generation and register allocation, as well as functional and object-oriented languages, that are missing from most books. In addition, more advanced chapters are now included so that it can be used as the basis for a two-semester or graduate course. The most accepted and successful techniques are described in a concise way,

rather than as an exhaustive catalog of every possible variant. Detailed descriptions of the interfaces between modules of a compiler are illustrated with actual C header files. The first part of the book, *Fundamentals of Compilation*, is suitable for a one-semester first course in compiler design. The second part, *Advanced Topics*, which includes the advanced chapters, covers the compilation of object-oriented and functional languages, garbage collection, loop optimizations, SSA form, loop scheduling, and optimization for cache-memory hierarchies.

This textbook provides an introduction to digital forensics, a rapidly evolving field for solving crimes. Beginning with the basic concepts of computer forensics, each of the book's 21 chapters focuses on a particular forensic topic composed of two parts: background knowledge and hands-on experience through practice exercises. Each theoretical or background section concludes with a series of review questions, which are prepared to test stu-

dents' understanding of the materials, while the practice exercises are intended to afford students the opportunity to apply the concepts introduced in the section on background knowledge. This experience-oriented textbook is meant to assist students in gaining a better understanding of digital forensics through hands-on practice in collecting and preserving digital evidence by completing various exercises. With 20 student-directed, inquiry-based practice exercises, students will better understand digital forensic concepts and learn digital forensic investigation techniques. This textbook is intended for upper undergraduate and graduate-level students who are taking digital-forensic related courses or working in digital forensics research. It can also be used by digital forensics practitioners, IT security analysts, and security engineers working in the IT security industry, particular IT professionals responsible for digital investigation and incident handling or researchers working in these related fields as a reference book.