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Foundation Maths Aug 11 2021 Deepen and broaden subject knowledge to set yourself up for future success Foundation Maths 7th Edition by Croft and Davison has been written for students taking higher and further education courses who may not have specialised in mathematics on post-16 qualifications, and who require a working knowledge of mathematical and statistical tools. By providing careful and steady guidance in mathematical methods along with a wealth of practice exercises to improve your maths skills, Foundation Maths imparts confidence in its readers. For students with established mathematical expertise, this book will be an ideal revision and reference guide. The style of the book also makes it suitable for self-study and distance learning with self-assessment questions and worked examples throughout. Foundation Maths is ideally suited for students studying marketing, business studies, management, science, engineering, social science, geography, combined studies and design. Features: Mathematical processes described in everyday language. Key points highlighting important results for easy reference Worked examples included throughout the book to reinforce learning. Self-assessment questions to test understanding of important concepts, with answers provided at the back of the book. Demanding Challenge Exercises included at the end of chapters stretch the keenest of students Test and assignment exercises with answers provided in a lecturer"s Solutions Manual available for download at go.pearson.com/uk/he/resources, allow lecturers to set regular work throughout the course A companion website containing a student support pack and video tutorials, as well as PowerPoint slides for lecturers, can be found at go.pearson.com/uk/he/resources New to this edition: A new section explains the importance of developing a thorough mathematical foundation in order to take advantage of and exploit the full capability of mathematical and statistical technology used in higher education and in the workplace Extensive sections throughout the book illustrate how readily-available computer software and apps can be used to perform mathematical and statistical calculations, particularly those involving algebra, calculus, graph plotting and data analysis There are revised, enhanced sections on histograms and factorisation of quadratic expressions The new edition is fully integrated with MyLab Math, a powerful online homework, tutorial and self-study system that contains over 1400 exercises that can be assigned or used for student practice, tests and homework Anthony Croft has taught mathematics in further and higher education institutions for over thirty years. During this time he has championed the development of mathematics support for the many students who find the transition from school to university mathematics particularly difficult. In 2008 he was awarded a National Teaching Fellowship in recognition of his work in this field. He has authored many successful mathematics textbooks, including several for engineering students. He was jointly awarded the IMA Gold Medal 2016 for his outstanding contribution to mathematics education. Robert Davison has thirty years" experience teaching mathematics in both further and higher education. He has authored many successful mathematics textbooks, including several for engineering students. Note: You are purchasing a standalone product; MyLab Math does not come packaged with this content. Students, if interested in purchasing this title with MyLab Math, ask your instructor to confirm the correct package ISBN and Course ID. Instructors, contact your Pearson representative for more information. If you would like to purchase both the physical text and MyLab Math search for: 9781292289762 / 1292289767 Foundation Maths 7th Edition plus MyLab Math with eText -- Access Card Package. Package consists of: 9781292289687 / 1292289686 Foundation Maths 7th Edition MyLab Math with Pearson eText -- ValuePack Access Card -- for Foundation Maths 7th Edition Pearson, the world"s learning company.

The Emergence of the American Mathematical Research Community, 1876-1900 Apr 07 2021 Cover -- Title page -- Contents -- Preface -- Acknowledgments -- Photograph and Figure Credits -- Chapter 1. An overview of American mathematics: 1776-1876 -- Chapter 2. A new departmental prototype: J.J. Sylvester and the Johns Hopkins University -- Chapter 3. Mathematics at Sylvester's Hopkins -- Chapter 4. German mathematics and the early mathematical career of Felix Klein -- Chapter 5. America's wanderlust generation -- Chapter 6. Changes on the horizon -- Chapter 7. The World's Columbian exposition of 1893 and the Chicago mathematical congress -- Chapter 8. Surveying mathematical landscapes: The Evanston colloquium lectures -- Chapter 9. Meeting the challenge: The University of Chicago and the American mathematical research community -- Chapter 10. Epilogue: Beyond the threshold: The American mathematical research community, 1900-1933 -- Bibliography -- Subject Index -- Back Cover

Entropy, Search, Complexity Jun 28 2020 This book collects survey papers in the fields of entropy, search and complexity, summarizing the latest developments in their respective areas. More than half of the papers belong to search theory which lies on the borderline of mathematics and computer science, information theory and combinatorics, respectively. The book will be useful to experienced researchers as well as young scientists and students both in mathematics and computer science.

Essential Mathematics for Political and Social Research Oct 21 2019 Essential Mathematics for Political and Social Research addresses an educational deficiency in the social and behavioral sciences. This 2006 book was the first of its kind to specifically address the comprehensive introduction to the mathematical principles needed by modern social scientists. The material introduces basic mathematical principles necessary to do analytical work in the social sciences, starting from first principles, but without unnecessary complexity. The core purpose is to present fundamental notions in standard notation and standard language with a clear, unified framework throughout. Through examples and exercises, this book is intended to not only motivate specific mathematical principles and practices, but also introduce the way that social science researchers use these tools. The intended emphasis is on conceptual understanding of key principles and their subsequent application.

Mathematical Topics in Fluid Mechanics Jul 10 2021 This Research Note presents several contributions and mathematical studies in fluid mechanics, namely in non-Newtonian and viscoelastic fluids and on the Navier-Stokes equations in unbounded domains. It includes review of the mathematical analysis of incompressible and compressible flows and results in magnetohydrodynamic and electrohydrodynamic stability and thermoconvective flow of Boussinesq-Stefan type. These studies, along with brief communications on a variety of related topics comprise the proceedings of a summer course held in Lisbon, Portugal in 1991. Together they provide a set of comprehensive survey and advanced introduction to problems in fluid mechanics and partial differential equations.

A Journey in Mathematics Education Research May 28 2020 Our objective is to publish a book that lays out the theoretical constructs and research methodologies within mathematics education that have been developed by Paul Cobb and explains the process of their development. We

propose to do so by including papers in which Cobb introduced new theoretical perspectives and methodologies into the literature, each preceded by a substantive accompanying introductory paper that explains the motivation/rationale for developing the new perspectives and/or methodologies and the processes through which they were developed, and Cobb's own retrospective comments. In this way the book provides the reader with heretofore unpublished material that lays out in considerable detail the issues and problems that Cobb has confronted in his work, that, from his viewpoint, required theoretical and methodological shifts/advances and provides insight into how he has achieved the shifts/advances. The result will be a volume that, in addition to explaining Cobb's contributions to the field of mathematics education, also provides the reader with insight into what is involved in developing an aggressive and evolving research program. When Cobb confronts problems and issues in his work that cannot be addressed using his existing theories and frameworks, he looks to other fields for theoretical inspiration. A critical feature of Cobb's work is that in doing so, he consciously appropriates and adapts ideas from these other fields to the purpose of supporting processes of learning and teaching mathematics; He does not simply accept the goals or motives of those fields. As a result, Cobb reconceptualizes and reframes issues and concepts so that they result in new ways of investigating, exploring, and explaining phenomena that he encounters in the practical dimensions of his work, which include working in classrooms, with teachers, and with school systems. The effect is that the field of mathematics education is altered. Other researchers have found his "new ways of looking" useful to them. And they, in turn, adapt these ideas for their own use. The complexity of many of the ideas that Cobb has introduced into the field of mathematics education can lead to a multiplicity of interpretations by practitioners and by other researchers, based on their own experiential backgrounds. Therefore, by detailing the development of Cobb's work, including the tensions involved in coming to grips with and reconciling apparently contrasting perspectives, the book will shed additional light on the processes of reconceptualization and thus help the reader to understand the reasons, mechanisms, and outcomes of researchers' constant pursuit of new insights.

How to Study for a Mathematics Degree Oct 25 2022 This no-nonsense book translates mathematics education research-based insights into practical advice for a student audience. It covers every aspect of studying for a mathematics degree, from the most abstract intellectual challenges to the everyday business of interacting with lecturers and making good use of study time.

IB Mathematics Standard Level Aug 19 2019 With more practice than any other resource, unrivalled guidance straight from the IB and the most comprehensive and correct syllabus coverage, this student book will set your learners up to excel. The only resource written with the IB curriculum team, it fully captures the IB philosophy and integrates the most in-depth assessment support.

Developing Research in Mathematics Education Jul 30 2020 Developing Research in Mathematics Education is the first book in the series New Perspectives on Research in Mathematics Education, to be produced in association with the prestigious European Society for Research in Mathematics Education. This inaugural volume sets out broad advances in research in mathematics education which have accumulated over the last 20 years through the sustained exchange of ideas and collaboration between researchers in the field. An impressive range of contributors provide specifically European and complementary global perspectives on major areas of research in the field on topics that include: the content domains of arithmetic, geometry, algebra, statistics, and probability; the mathematical processes of proving and modeling; teaching and learning at specific age levels from early years to university; teacher education, teaching and classroom practices; special aspects of teaching and learning mathematics such as creativity, affect, diversity, technology and history; theoretical perspectives and comparative approaches in mathematics education research. This book is a fascinating compendium of state-of-the-art knowledge for all mathematics education researchers, graduate students, teacher educators and curriculum developers worldwide.

A Mathematics Course for Political and Social Research Sep 24 2022 Political science and sociology increasingly rely on mathematical modeling and sophisticated data analysis, and many graduate programs in these fields now require students to take a "math camp" or a semester-long or yearlong course to acquire the necessary skills. Available textbooks are written for mathematics or economics majors, and fail to convey to students of political science and sociology the reasons for learning often-abstract mathematical concepts. A Mathematics Course for Political and Social Research fills this gap, providing both a primer for math novices in the social sciences and a handy reference for seasoned researchers. The book begins with the fundamental building blocks of mathematics and basic algebra, then goes on to cover essential subjects such as calculus in one and more than one variable, including optimization, constrained optimization, and implicit functions; linear algebra, including Markov chains and eigenvectors; and probability. It describes the intermediate steps most other textbooks leave out, features numerous exercises throughout, and grounds all concepts by illustrating their use and importance in political science and sociology. Uniquely designed and ideal for students and researchers in political science and sociology Uses practical examples from political science and sociology Features "Why Do I Care?" sections that explain why concepts are useful Includes numerous exercises Complete online solutions manual (available only to professors, email david.siegel at duke.edu, subject line "Solution Set") Selected solutions available online to students

Building Bridges Nov 02 2020 This collection of articles offers an excellent view on the state of combinatorics and related topics. A number of friends and colleagues, all top authorities in their fields of expertise have contributed their latest research papers to this volume.

Mathematics Standard Level for IB Diploma Exam Preparation Guide Aug 31 2020 A new series of Exam Preparation guides for the IB Diploma Mathematics HL and SL and Mathematical Studies. This exam preparation guide for the IB Diploma Mathematics Standard Level course breaks the course down into chapters that summarise material and present revision questions by exam question type, so that revision can be highly focused to make best use of students' time. Students can stretch themselves to achieve their best with 'going for the top' questions for those who want to achieve the highest results. Worked solutions for all the mixed and 'going for the top' questions are included, plus exam hints throughout. Guides for Mathematics Higher Level and Mathematical Studies are also available.

Mathematical Studies Standard Level for the IB Diploma Coursebook Jun 21 2022 This completely new title is written to specifically cover the new IB Diploma Mathematical Studies syllabus. The significance of mathematics for practical applications is a prominent theme throughout this coursebook, supported with Theory of Knowledge, internationalism and application links to encourage an appreciation of the broader contexts of mathematics. Mathematical modelling is also a key feature. GDC tips are integrated throughout, with a dedicated GDC chapter for those needing more support. Exam hints and IB exam-style questions are provided within each chapter; sample exam papers (online) can be tackled in exam-style conditions for further exam preparation. Guidance and support for the internal assessment is also available, providing advice on good practice when writing the project.

It's Just Math Jun 09 2021 At the interface between chemistry and mathematics, this book brings together research on the use mathematics in the context of undergraduate chemistry courses. These university-level studies also support national efforts expressed in the Next Generation Science Standards regarding the importance of skills, such as quantitative reasoning and interpreting data. Curated by award-winning leaders in the field, this book is useful for instructors in chemistry, mathematics, and physics at the secondary and university levels.

The Math of Life and Death Mar 26 2020 A brilliant and entertaining mathematician illuminates seven mathematical principles that shape our lives. “Kit Yates shows how our private and social lives are suffused by mathematics. Ignorance may bring tragedy or farce. This is an exquisitely interesting book. It’s a deeply serious one too and, for those like me who have little math, it’s delightfully readable.” —Ian McEwan, author of Atonement “Kit Yates is a natural storyteller. Through fascinating stories and examples, he shows how maths is the beating heart of so much of modern life. An exciting new voice in the world of science communication.” —Marcus du Sautoy, author of The Music of the Primes From birthdays to birth rates to how we perceive the passing of time, mathematical patterns shape our lives. But for those of us who left math behind in

high school, the numbers and figures hurled at us as we go about our days can sometimes leave us scratching our heads and feeling as if we're fumbling through a mathematical minefield. In this eye-opening and extraordinarily accessible book, mathematician Kit Yates illuminates hidden principles that can help us understand and navigate the chaotic and often opaque surfaces of our world. In The Math of Life and Death, Yates takes us on a fascinating tour of everyday situations and grand-scale applications of mathematical concepts, including exponential growth and decay, optimization, statistics and probability, and number systems. Along the way he reveals the mathematical undersides of controversies over DNA testing, medical screening results, and historical events such as the Chernobyl disaster and the Amanda Knox trial. Readers will finish this book with an enlightened perspective on the news, the law, medicine, and history, and will be better equipped to make personal decisions and solve problems with math in mind, whether it's choosing the shortest checkout line at the grocery store or halting the spread of a deadly disease.
AQA Level 3 Certificate in Mathematical Studies Dec 03 2020 Maths but not as you know it; a fresh take that develops problem-solving skills with new and innovative resources that place contemporary contexts at the centre of learning to maximise student potential. - Supports a wide ability range with challenges for all levels. - Provides assessment practice and guidance with practice questions and worked examples to help each student to reach their potential by boosting the skills they need to understand the demands of the new AQA Level 3 Certificate in Mathematical Studies specification. - Saves you time with a variety of new ideas for use in the classroom and at home. - Places mathematical problems into real life contexts helping your students to apply their knowledge across subjects. - Supports the non-specialist or less-confident teacher.
Why Study Mathematics? Nov 26 2022 Considering studying mathematics at university? Wondering whether a mathematics degree will get you a good job, and what you might earn? Want to know what it's actually like to study mathematics at degree level? This book tells you what you need to know. Studying any subject at degree level is an investment in the future that involves significant cost. Now more than ever, students and their parents need to weigh up the potential benefits of university courses. That's where the Why Study series comes in. This series of books, aimed at students, parents and teachers, explains in practical terms the range and scope of an academic subject at university level and where it can lead in terms of careers or further study. Each book sets out to enthuse the reader about its subject and answer the crucial questions that a college prospectus does not.
More Mathematical Quickies & Trickies Feb 23 2020 This long-awaited sequel of Mathematical Quickies & Trickles comes with many creative worked examples and questions, with cartoons sprinkled throughout the book to keep in line with the same irreverent and fun spirit of the previous book. In addition to 300+ trick and tricky questions, More Mathematical Quickies & Trickles comes with more than 25 five-minute enrichment mathematics items, aimed at enhancing the mathematical problem-solving skills of problem solvers. You won't only be exposed to different problem-solving techniques, commonly used in answering math contests and competitions questions, but also learn to appreciate elegant or intuitive solutions. More Mathematical Quickies & Trickies would appeal primarily to these audiences: * grades 6-8 students and teachers looking for some fertile trick and tricky questions; * mathletes preparing for local and regional contests and competitions; * problem solvers longing to be challenged by questions whose obvious solutions are never the correct ones for what offhand appears to be true is false. Contents 1. Creative GST 2. Are You Calculator-Smart? 3. What Is the Easy Way? 4. The Magic of Three Consecutive Numbers 5. Twitter Math @MathPlus 6. What Is 27 x 37, Really? 7. Humanizing 1, 2, 3 8. A Mathophobia Kit 9. WITs: 13 Ways to Attain Mathematical Excellence 10. Facebook Math: Numeracy vs. Literacy 11. Thou Shalt Not Divide By Zero 12. Math Jokes to Relieve Stress 13. Look-see Proofs 14. Some PhD Math Questions 15. Mathematical Prayers 16. The Largest Product 17. What's Wrong?: A Comedy of Mathematical Errors 18. The Aha! Myth 19. Sam Loyd's Toughies 20. The Tuesday Boy Problem 21. What Is 1 + 1, Really? 22. In Love with Cryptarithms 23. Mathematical Kiasuism 24. The Mathemagic of 142857 25. The Lighter Side of Singapore Math 26. K C Yan's Laws & Lores 27 Flee and Free from the FREE Answers/Hints/Solutions Bibliography & References
Mathematics for Economics and Business Dec 23 2019 Mathematics for Economics and Business, 9e is the essential resource you need when studying mathematics as part of your economics, management or business course. Whatever your level of prior mathematical knowledge, ability or confidence, this book will guide you step-by-step through the key mathematical concepts and techniques you need to succeed. Starting with the basics, the book is designed to allow you to progress at your own pace, with a wealth of examples, practice exercises and self-test questions to check your understanding along the way. Worked examples throughout each chapter illustrate how mathematical concepts and techniques relate to the business world and encourage you to solve real problems yourself. Over 200 new questions have been added to this new edition, with answers provided, making it a fantastic resource for revision purposes. Additional online resources to support your learning, including an online homework and tutorial system can be accessed via MyLab Math, which accompanies this book. You need an access card and a course ID, issued by your lecturer.
Transfer of Learning Sep 19 2019 This book provides a common language for and makes connections between transfer research in mathematics education and transfer research in related fields. It generates renewed excitement for and increased visibility of transfer research, by showcasing and aggregating leading-edge research from the transfer research community. This book also helps to establish transfer as a sub-field of research within mathematics education and extends and refines alternate perspectives on the transfer of learning. The book provides an overview of current knowledge in the field as well as informs future transfer research.
Contextualized Mathematics Nov 21 2019 What is contextualized mathematics? What are the foundational research underpinnings of contextualized math curriculum? What have we learned about contextualized math curriculum that will improve math education in the future? These questions build the foundation for a reader to begin a journey with Dr. Valenzuela on this crucial topic for math education and for our society.
How to Study as a Mathematics Major Jan 16 2022 This no-nonsense book translates mathematics education research-based insights into practical advice for a student audience. It covers every aspect of studying for a mathematics major, from the most abstract intellectual challenges to the everyday business of interacting with lecturers and making good use of study time.
Barron's IB Math Studies Dec 27 2022 The International BaccalaureateÂ® (IB) was founded in Geneva, Switzerland in 1968 as a non-profit educational foundation that endeavored to develop inquiring, knowledgeable and caring young people who would go on to create a better and more peaceful world through intercultural understanding and respect. What began as a single program for internationally mobile students preparing for college, has grown into a series of programs for students up to age 19. Barron's is pleased to offer a brand new review guide for the IB Mathematics Studies exam. The content of the book is based on the curriculum and covers all topics required for exams beginning in 2014. It includes: An overview of the exam, including an explanation of scoring Thorough review and explanation for all curriculum subjects Extensive review and practice for each topic, including Paper 1 and Paper 2examples Three full-length paper 1 and 2 practice exams with solutions, and comprehensive explanations Calculator instructions for the TI-84 and TI-Nspire This all-encompassing book also serves as a valuable resource during first year college math courses.
Bridging the Gap to University Mathematics May 08 2021 Helps to ease the transition between school/college and university mathematics by (re)introducing readers to a range of topics that they will meet in the first year of a degree course in the mathematical sciences, refreshing their knowledge of basic techniques and focussing on areas that are often perceived as the most challenging. Each chapter starts with a "Test Yourself" section so that readers can monitor their progress and readily identify areas where their understanding is incomplete. A range of exercises, complete with full solutions, makes the book ideal for self-study.

Math Worlds Dec 15 2021 An international group of distinguished scholars brings a variety of resources to bear on the major issues in the study and teaching of mathematics, and on the problem of understanding mathematics as a cultural and social phenomenon. All are guided by the notion that our understanding of mathematical knowledge must be grounded in and reflect the realities of mathematical practice. Chapters on the philosophy of mathematics illustrate the growing influence of a pragmatic view in a field traditionally dominated by platonic perspectives. In a section on mathematics, politics, and pedagogy, the emphasis is on politics and values in mathematics education. Issues addressed include gender and mathematics, applied mathematics and social concerns, and the reflective and dialogical nature of mathematical knowledge. The concluding section deals with the history and sociology of mathematics, and with mathematics and social change. Contributors include Philip J. Davis, Helga Jungwirth, Nel Noddings, Yehuda Rav, Michael D. Resnik, Ole Skovsmose, and Thomas Tymoczko.
Studies in Mathematics Education Oct 13 2021
Knowing and Teaching Elementary Mathematics Aug 23 2022 Studies of teachers in the U.S. often document insufficient subject matter knowledge in mathematics. Yet, these studies give few examples of the knowledge teachers need to support teaching, particularly the kind of teaching demanded by recent reforms in mathematics education. Knowing and Teaching Elementary Mathematics describes the nature and development of the knowledge that elementary teachers need to become accomplished mathematics teachers, and suggests why such knowledge seems more common in China than in the United States, despite the fact that Chinese teachers have less formal education than their U.S. counterparts. The anniversary edition of this bestselling volume includes the original studies that compare U.S and Chinese elementary school teachers' mathematical understanding and offers a powerful framework for grasping the mathematical content necessary to understand and develop the thinking of school children. Highlighting notable changes in the field and the author's work, this new edition includes an updated preface, introduction, and key journal articles that frame and contextualize this seminal work.
Reading Mathematics in Early Modern Europe Mar 06 2021 Libraries and archives contain many thousands of early modern mathematical books, of which almost equally many bear readers' marks, ranging from deliberate annotations and accidental blots to corrections and underlinings. Such evidence provides us with the material and intellectual tools for exploring the nature of mathematical reading and the ways in which mathematics was disseminated and assimilated across different social milieus in the early centuries of print culture. Other evidence is important, too, as the case studies collected in the volume document. Scholarly correspondence can help us understand the motives and difficulties in producing new printed texts, library catalogues can illuminate collection practices, while manuscripts can teach us more about textual traditions. By defining and illuminating the distinctive world of early modern mathematical reading, the volume seeks to close the gap between the history of mathematics as a history of texts and history of mathematics as part of the broader history of human culture.
Culture and Cognitive Development Jan 24 2020 Researchers examining children's mathematics acquisition are now questioning the belief that children learn mathematics principally through formalized, in-school mathematics education. There is increasing evidence that children gain mathematical understanding through their participation in out-of-school cultural practices and that their mathematics only occasionally resembles what they learn in the classroom. Culture and Cognitive Development presents the latest research by Dr. Geoffrey Saxe on this issue. In examinations of the mathematical understandings of child candy sellers in an urban center in northeastern Brazil, Dr. Saxe finds sharp contrasts between mathematics as practiced in school and in real-world settings. In this unique research project he presents a penetrating conceptual treatment of the interplay between culture and cognitive development, filling a void in current research literature. Subjects examined include: the interplay between sociocultural and cognitive developmental processes the differences between math knowledge learned in and out of the classroom the ways math learning in the classroom is modified by children's out-of-school mathematics and, correspondingly, how practical out-of-school mathematics use is modified by formal education
Connecting Mathematics and Mathematics Education May 20 2022 This open access book features a selection of articles written by Erich Ch. Wittmann between 1984 to 2019, which shows how the "design science conception" has been continuously developed over a number of decades. The articles not only describe this conception in general terms, but also demonstrate various substantial learning environments that serve as typical examples. In terms of teacher education, the book provides clear information on how to combine (well-understood) mathematics and methods courses to benefit of teachers. The role of mathematics in mathematics education is often explicitly and implicitly reduced to the delivery of subject matter that then has to be selected and made palpable for students using methods imported from psychology, sociology, educational research and related disciplines. While these fields have made significant contributions to mathematics education in recent decades, it cannot be ignored that mathematics itself, if well understood, provides essential knowledge for teaching mathematics beyond the pure delivery of subject matter. For this purpose, mathematics has to be conceived of as an organism that is deeply rooted in elementary operations of the human mind, which can be seamlessly developed to higher and higher levels so that the full richness of problems of various degrees of difficulty, and different means of representation, problem-solving strategies, and forms of proof can be used in ways that are appropriate for the respective level. This view of mathematics is essential for designing learning environments and curricula, for conducting empirical studies on truly mathematical processes and also for implementing the findings of mathematics education in teacher education, where it is crucial to take systemic constraints into account.
Mathematics Higher Level for the IB Diploma Exam Preparation Guide Jan 04 2021 A new series of Exam Preparation guides for the IB Diploma Mathematics HL and SL and Mathematical Studies. This exam preparation guide for the core content of the IB Diploma Mathematics Higher Level course and breaks the course down into chapters that summarise material and present revision questions by exam question type, so that revision can be highly focused to make best use of students' time. Students can stretch themselves to achieve their best with 'going for the top' questions for those who want to achieve the highest results. Worked solutions for all the mixed and 'going for the top' questions are included, plus exam hints throughout. Guides for Mathematics Standard Level and Mathematical Studies are also available.
Lines of Inquiry in Mathematical Modelling Research in Education Oct 01 2020 This open access book is based on selected presentations from Topic Study Group 21: Mathematical Applications and Modelling in the Teaching and Learning of Mathematics at the 13th International Congress on Mathematical Education (ICME 13), held in Hamburg, Germany on July 24–31, 2016. It contributes to the theory, research and teaching practice concerning this key topic by taking into account the importance of relations between mathematics and the real world. Further, the book addresses the "balancing act" between developing students' modelling skills on the one hand, and using modelling to help them learn mathematics on the other, which arises from the integration of modelling into classrooms. The contributions, prepared by authors from 9 countries, reflect the spectrum of international debates on the topic, and the examples presented span schooling from years 1 to 12, teacher education, and teaching modelling at the tertiary level. In addition the book highlights professional learning and development for in-service teachers, particularly in systems where the introduction of modelling into curricula means reassessing how mathematics is taught. Given its scope, the book will appeal to researchers and teacher educators in mathematics education, as well as pre-service teachers and school and university educators
Building Bridges II Feb 05 2021 This volume collects together research and survey papers written by invited speakers of the conference celebrating the 70th birthday of László Lovász. The topics covered include classical subjects such as extremal graph theory, coding theory, design theory, applications of linear algebra and combinatorial optimization, as well as recent trends such as extensions of graph limits, online or statistical versions of classical combinatorial problems, and new methods of derandomization. László Lovász is one of the pioneers in the

interplay between discrete and continuous mathematics, and is a master at establishing unexpected connections, “building bridges” between seemingly distant fields. His invariably elegant and powerful ideas have produced new subfields in many areas, and his outstanding scientific work has defined and shaped many research directions in the last 50 years. The 14 contributions presented in this volume, all of which are connected to László Lovász's areas of research, offer an excellent overview of the state of the art of combinatorics and related topics and will be of interest to experienced specialists as well as young researchers.

Online Learning in Mathematics Education Jul 22 2022 This book brings together research from mathematics education and instructional design to describe the development and impact of online environments on prospective and practicing teachers’ learning to teach mathematics. The move to online learning has steadily increased over the past decade. Its most rapid movement occurring in 2020 with most instruction taking place remotely. Chapters in this book highlight issues related to teacher learning in three main contexts: formal, informal, and experiential or practice-based. This volume brings together researchers from the different but related fields of instructional design and mathematics education to engage in dialogue around how we design and study the impacts of online learning in general and online mathematics education more specifically. The book is very timely with most instruction taking place online and mathematics educators addressing challenges related to supporting teachers’ formal, informal, and experiential learning online. A chapter in each section will synthesize ideas presented by instructional designers and mathematics educators as it relates to teacher learning in each context. At the end of each section, a retrospective chapter is presented to reflect on what the different perspectives offer to better understand mathematics teacher learning in online environments. This book is of interest to mathematics educators, researchers, teacher educators, professional development providers, and instructional designers.

Key Ideas in Teaching Mathematics Apr 19 2022 International research is used to inform teachers and others about how students learn key ideas in higher school mathematics, what the common problems are, and the strengths and pitfalls of different teaching approaches. An associated website, hosted by the Nuffield Foundation, gives summaries of main ideas and access to sample classroom tasks.

Mathematical Studies on Human Disease Dynamics Sep 12 2021 This volume contains the proceedings of the AMS-IMS-SIAM Joint Summer Research Conference on Modeling the Dynamics of Human Diseases: Emerging Paradigms and Challenges, held in Snowbird, Utah, July 17-21, 2005. The goal of the conference was to bring together leading and upcoming researchers to discuss the latest advances and challenges associated with the modeling of the dynamics of emerging and re-emerging diseases, and to explore various control strategies. The articles included in this book are devoted to some of the significant recent advances, trends, and challenges associated with the mathematical modeling and analysis of the dynamics and control of some diseases of public health importance.In addition to illustrating many of the diverse prevailing epidemiological challenges, together with the diversity of mathematical approaches needed to address them, this book provides insights on a number of topical modeling issues such as the modeling and control of mosquito-borne diseases, respiratory diseases, animal diseases (such as foot-and-mouth disease), cancer and tumor growth modeling, influenza, HIV, HPV, rotavirus, etc. This book also touches upon other important topics such as the use of modeling in homeland security and some review and new results on various modeling paradigms including network, stochastic and deterministic formulations together with the use of optimal control and related methods for evaluating control strategies.

Advanced Problems in Mathematics: Preparing for University Feb 17 2022 This book is intended to help candidates prepare for entrance examinations in mathematics and scientific subjects, including STEP (Sixth Term Examination Paper). STEP is an examination used by Cambridge colleges as the basis for conditional offers. They are also used by Warwick University, and many other mathematics departments recommend that their applicants practice on the past papers even if they do not take the examination. Advanced Problems in Mathematics is recommended as preparation for any undergraduate mathematics course, even for students who do not plan to take the Sixth Term Examination Paper. The questions analysed in this book are all based on recent STEP questions selected to address the syllabus for Papers I and II, which is the A-level core (i.e. C1 to C4) with a few additions. Each question is followed by a comment and a full solution. The comments direct the reader's attention to key points and put the question in its true mathematical context. The solutions point students to the methodology required to address advanced mathematical problems critically and independently. This book is a must read for any student wishing to apply to scientific subjects at university level and for anybody interested in advanced mathematics.

Mathematical Studies in Nonlinear Wave Propagation Nov 14 2021 Lively discussions and stimulating research were part of a five-day conference on Mathematical Methods in Nonlinear Wave Propagation sponsored by the NSF and CBMS. This volume is a collection of lectures and papers stemming from that event. Leading experts present dynamical systems and chaos, scattering and spectral theory, nonlinear wave equations, optimal control, optical waveguide design, and numerical simulation. The book is suitable for a diverse audience of mathematical specialists interested in fiber optic communications and other nonlinear phenomena. It is also suitable for engineers and other scientists interested in the mathematics of nonlinear wave propagation.

Proceedings of the Forum "Math-for-Industry" 2019 Mar 18 2022 p="" This book is intended for a wide range of researchers both from academia and industry interested in contributing to industries in an interdisciplinary way. The primary industries, including agriculture, fishery, and power industries, are the most fundamental infrastructure of the human societies. Traditionally, primary industries have been managed in the small family/community base, but with increase in population and development of society, the size of primary industry has grown. The efficiency, quality, and stability of these industries affect the societies significantly, so that they have become one of the major areas that mathematics could contribute to substantially. Also, primary industries are affected by the environment, where mathematical studies play an essential role. The conference was hosted by the research community in New Zealand, where such collaborative activities in mathematics between the industry and academia have been successfully established from an early stage. This enabled the conference to bring together a range of research topics- from pioneering works to cutting-edge results, from agriculture to geothermal energy and nuclear fusion, and from mathematical modeling and analysis to data analysis. ^

The Learning and Development of Mathematics Teacher Educators Apr 26 2020 Research in mathematics teacher education as a distinctive field of inquiry has grown substantially over the past 10-15 years. Within this field there is emerging interest in how mathematics teacher educators (MTEs) themselves learn and develop. Until recently there were few published studies on this topic, and the processes by which mathematics teacher educators learn, and the forms of knowledge they require for effective practice, had not been systematically investigated. However, researchers in mathematics education are now beginning to investigate the development of MTE expertise and associated issues. This volume draws on the latest research and thinking in this area is therefore timely to stimulate future development and directions. It will survey the emerging field of inquiry in mathematics education, combining the work of established scholars with perspectives of newcomers to the field, with the aim of influencing development of the field, invite cross-cultural comparisons in becoming a mathematics teacher educator by highlighting issues in the development of MTEs in different countries, and examine the roles of both mathematics educators and mathematicians in preparing future teachers of mathematics. The primary audience will be university-based mathematics teacher educators and MTE researchers, and postgraduate research students who are seeking academic careers as MTEs. Additional interest may come from teacher educators in disciplines other than mathematics, and education policy makers responsible for accreditation and quality control of initial teacher education programs.

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