

The Mathematical Olympiad Handbook An Introduction

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Principles and Techniques in Combinatorics Chuan-Chong Chen 1992 A textbook suitable for undergraduate courses. The materials are presented very explicitly so that students will find it very easy to read. A wide range of examples, about 500 combinatorial problems taken from various mathematical competitions and exercises are also included.

Introduction to Algebra Richard Rusczyk 2009

A Primer for Mathematics Competitions Alexander Zawaira 2008-10-31 The importance of mathematics competitions has been widely recognised for three reasons: they help to develop imaginative capacity and thinking skills whose value far transcends mathematics; they constitute the most effective way of discovering and nurturing mathematical talent; and they provide a means to combat the prevalent false image of mathematics held by high school students, as either a fearsomely difficult or a dull and uncreative subject. This book provides a comprehensive training resource for competitions from local and provincial to national Olympiad level, containing hundreds of diagrams, and graced by many light-hearted cartoons. It features a large collection of what mathematicians call "beautiful" problems - non-routine, provocative, fascinating, and challenging problems, often with elegant solutions. It features careful, systematic exposition of a selection of the most important topics encountered in mathematics competitions, assuming little prior knowledge. Geometry, trigonometry, mathematical induction, inequalities, Diophantine equations, number theory, sequences and series, the binomial theorem, and combinatorics - are all developed in a gentle but lively manner, liberally illustrated with examples, and consistently motivated by attractive "appetiser" problems, whose solution appears after the relevant theory has been expounded. Each chapter is presented as a "toolchest" of instruments designed for cracking the problems collected at the end of the chapter. Other topics, such as algebra, coordinate geometry, functional equations and probability, are introduced and elucidated in the posing and solving of the large collection of miscellaneous problems in the final toolchest. An unusual feature of this book is the attention paid throughout to the history of mathematics - the origins of the ideas, the terminology and some of the problems, and the celebration of mathematics as a multicultural, cooperative human achievement. As a bonus the aspiring "mathlete" may encounter, in the most enjoyable way possible, many of the topics that form the core of the standard school curriculum.

Introduction to Algebra Clarkson 1994

An Introduction to Diophantine Equations Titu Andreescu 2010-09-02 This problem-solving book is an introduction to the study of Diophantine equations, a class of equations in which only integer solutions are allowed. The presentation features some classical Diophantine equations, including linear, Pythagorean, and some higher degree equations, as well as exponential Diophantine equations. Many of the selected exercises and problems are original or are presented with original solutions. An Introduction to Diophantine Equations: A Problem-Based Approach is intended for undergraduates, advanced high school students and teachers, mathematical contest participants — including Olympiad and Putnam competitors — as well as readers interested in essential mathematics. The work uniquely presents unconventional and non-routine examples, ideas, and techniques.

First Steps for Math Olympians: Using the American Mathematics Competitions J. Douglas Faires 2020-10-26 Any high school student preparing for the American Mathematics Competitions should get their hands on a copy of this book! A major aspect of mathematical training and its benefit to society is the ability to use logic to solve problems. The American Mathematics Competitions (AMC) have been given for more than fifty years to millions of high school students. This book considers the basic ideas behind the solutions to the majority of these problems, and presents examples and exercises from past exams to illustrate the concepts. Anyone taking the AMC exams or helping students prepare for them will find many useful ideas here. But people generally interested in logical problem solving should also find the problems and their solutions interesting. This book will promote interest in mathematics by providing students with the tools to attack problems that occur on mathematical problem-solving exams, and specifically to level the playing field for those who do not have access to the enrichment programs that are common at the top academic high schools. The book can be used either for self-study or to give people who want to help students prepare for mathematics exams easy access to topic-oriented material and samples of problems based on that material. This is useful for teachers who want to hold special sessions for students, but it is equally valuable for parents who have children with mathematical interest and ability. As students' problem solving abilities improve, they will be able to comprehend more difficult concepts requiring greater mathematical ingenuity. They will be taking their first steps towards becoming math Olympians!

Competitive Math for Middle School Vinod Krishnamoorthy 2018-04-09 The 39 self-contained sections in this book present worked-out examples as well as many sample problems categorized by the level of difficulty as Bronze, Silver, and Gold in order to help the readers gauge their progress and learning. Detailed solutions to all problems in each section are provided at the end of each chapter. The book can be used not only as a text but also for self-study. The text covers algebra (solving single equations and systems of equations of varying degrees, algebraic manipulations for creative problem solving, inequalities, basic set theory, sequences and series, rates and proportions, unit analysis, and percentages), probability (counting techniques, introductory probability theory, more set theory, permutations and combinations, expected value, and symmetry), and number theory (prime factorizations and their applications, Diophantine equations, number bases, modular arithmetic, and divisibility). It focuses on guiding students through creative problem-solving and on teaching them to apply their knowledge in a wide variety of scenarios rather than rote memorization of mathematical facts. It is aimed at, but not limited to, high-performing middle school students and goes further in depth and teaches new concepts not otherwise taught in traditional public schools.

Moscow Mathematical Olympiads, 1993-1999 Roman Mikhaïlovich Fedorov 2011 The Moscow Mathematical Olympiad has been challenging high school students with stimulating, original problems of different degrees of difficulty for over 75 years. The problems are nonstandard; solving them takes wit, thinking outside the box, and, sometimes, hours of contemplation. Some are within the reach of most

mathematically competent high school students, while others are difficult even for a mathematics professor. Many mathematically inclined students have found that tackling these problems, or even just reading their solutions, is a great way to develop mathematical insight. In 2006 the Moscow Center for Continuous Mathematical Education began publishing a collection of problems from the Moscow Mathematical Olympiads, providing for each an answer (and sometimes a hint) as well as one or more detailed solutions. This volume represents the years 1993-1999. The problems and the accompanying material are well suited for math circles. They are also appropriate for problem-solving classes and practice for regional and national mathematics competitions. In the interest of fostering a greater awareness and appreciation of mathematics and its connections to other disciplines and everyday life, MSRI and the AMS are publishing books in the Mathematical Circles Library series as a service to young people, their parents and teachers, and the mathematics profession. Titles in this series are co-published with the Mathematical Sciences Research Institute (MSRI).

Winning Solutions Edward Lozansky 2012-12-06 This book provides the mathematical tools and problem-solving experience needed to successfully compete in high-level problem solving competitions. Each section presents important background information and then provides a variety of worked examples and exercises to help bridge the gap between what the reader may already know and what is required for high-level competitions. Answers or sketches of the solutions are given for all exercises.

Inequalities Radmila Bulajich Manfrino 2010-01-01 This book is intended for the Mathematical Olympiad students who wish to prepare for the study of inequalities, a topic now of frequent use at various levels of mathematical competitions. In this volume we present both classic inequalities and the more useful inequalities for confronting and solving optimization problems. An important part of this book deals with geometric inequalities and this fact makes a big difference with respect to most of the books that deal with this topic in the mathematical olympiad. The book has been organized in four chapters which have each of them a different character. Chapter 1 is dedicated to present basic inequalities. Most of them are numerical inequalities generally lacking any geometric meaning. However, where it is possible to provide a geometric interpretation, we include it as we go along. We emphasize the importance of some of these inequalities, such as the inequality between the arithmetic mean and the geometric mean, the Cauchy-Schwarz inequality, the rearrangement inequality, the Jensen inequality, the Muirhead theorem, among others. For all these, besides giving the proof, we present several examples that show how to use them in mathematical olympiad problems. We also emphasize how the substitution strategy is used to deduce several inequalities.

The Colorado Mathematical Olympiad and Further Explorations Alexander Soifer 2011-04-13 This updated printing of the first edition of Colorado Mathematical Olympiad: the First Twenty Years and Further Explorations gives the interesting history of the competition as well as an outline of all the problems and solutions that have been created for the contest over the years. Many of the essay problems were inspired by Russian mathematical folklore and written to suit the young audience; for example, the 1989 Sugar problem was written in a pleasant Lewis Carroll-like story. Some other entertaining problems involve olde Victorian map colourings, King Authur and the knights of the round table, rooks in space, Santa Claus and his elves painting planes, football for 23, and even the Colorado Springs subway system.

Putnam and Beyond Răzvan Gelca 2017-09-19 This book takes the reader on a journey through the world of college mathematics, focusing on some of the most important concepts and results in the theories of polynomials, linear algebra, real analysis, differential equations, coordinate geometry, trigonometry, elementary number theory, combinatorics, and probability. Preliminary material provides an overview of common methods of proof: argument by contradiction, mathematical induction,

pigeonhole principle, ordered sets, and invariants. Each chapter systematically presents a single subject within which problems are clustered in each section according to the specific topic. The exposition is driven by nearly 1300 problems and examples chosen from numerous sources from around the world; many original contributions come from the authors. The source, author, and historical background are cited whenever possible. Complete solutions to all problems are given at the end of the book. This second edition includes new sections on quad ratic polynomials, curves in the plane, quadratic fields, combinatorics of numbers, and graph theory, and added problems or theoretical expansion of sections on polynomials, matrices, abstract algebra, limits of sequences and functions, derivatives and their applications, Stokes' theorem, analytical geometry, combinatorial geometry, and counting strategies. Using the W.L. Putnam Mathematical Competition for undergraduates as an inspiring symbol to build an appropriate math background for graduate studies in pure or applied mathematics, the reader is eased into transitioning from problem-solving at the high school level to the university and beyond, that is, to mathematical research. This work may be used as a study guide for the Putnam exam, as a text for many different problem-solving courses, and as a source of problems for standard courses in undergraduate mathematics. Putnam and Beyond is organized for independent study by undergraduate and gradu ate students, as well as teachers and researchers in the physical sciences who wish to expand their mathematical horizons.

More Mathematical Challenges Tony Gardiner 1997-06-12 This book contains over 100 challenging problems for pupils aged 11-15, taken from the hugely popular UK Junior Mathematical Olympiad. There are also sixty additional problems in a similar style. The second section of the book consists of detailed comments and hints, while the third section gives outline solutions. These high quality, more challenging problems will provide an excellent and invaluable resource for all mathematics teachers.

Solving Mathematical Problems Terence Tao 2006-07-28 Authored by a leading name in mathematics, this engaging and clearly presented text leads the reader through the tactics involved in solving mathematical problems at the Mathematical Olympiad level. With numerous exercises and assuming only basic mathematics, this text is ideal for students of 14 years and above in pure mathematics.

Introduction to Math Olympiad Problems Michael A. Radin 2021-06-24 Introduction to Math Olympiad Problems aims to introduce high school students to all the necessary topics that frequently emerge in international Math Olympiad competitions. In addition to introducing the topics, the book will also provide several repetitive-type guided problems to help develop vital techniques in solving problems correctly and efficiently. The techniques employed in the book will help prepare students for the topics they will typically face in an Olympiad-style event, but also for future college mathematics courses in Discrete Mathematics, Graph Theory, Differential Equations, Number Theory and Abstract Algebra. Features: Numerous problems designed to embed good practice in readers, and build underlying reasoning, analysis and problem-solving skills Suitable for advanced high school students preparing for Math Olympiad competitions

A First Step to Mathematical Olympiad Problems Derek Holton 2009-07-30 See also A SECOND STEP TO MATHEMATICAL OLYMPIAD PROBLEMS The International Mathematical Olympiad (IMO) is an annual international mathematics competition held for pre-collegiate students. It is also the oldest of the international science olympiads, and competition for places is particularly fierce. This book is an amalgamation of the first 8 of 15 booklets originally produced to guide students intending to contend for placement on their country's IMO team. The material contained in this book provides an introduction to the main mathematical topics covered in the IMO, which are: Combinatorics, Geometry and Number Theory. In addition, there is a special emphasis on how to approach unseen questions in Mathematics,

and model the writing of proofs. Full answers are given to all questions. Though *A First Step to Mathematical Olympiad Problems* is written from the perspective of a mathematician, it is written in a way that makes it easily comprehensible to adolescents. This book is also a must-read for coaches and instructors of mathematical competitions.

Problem-Solving Strategies Arthur Engel 2008-01-19 A unique collection of competition problems from over twenty major national and international mathematical competitions for high school students. Written for trainers and participants of contests of all levels up to the highest level, this will appeal to high school teachers conducting a mathematics club who need a range of simple to complex problems and to those instructors wishing to pose a "problem of the week", thus bringing a creative atmosphere into the classrooms. Equally, this is a must-have for individuals interested in solving difficult and challenging problems. Each chapter starts with typical examples illustrating the central concepts and is followed by a number of carefully selected problems and their solutions. Most of the solutions are complete, but some merely point to the road leading to the final solution. In addition to being a valuable resource of mathematical problems and solution strategies, this is the most complete training book on the market.

The Mathematical Olympiad Handbook A. Gardiner 1997 The book contains problems from the first 32 British Mathematical Olympiad (BMO) papers 1965-96 and gives hints and outline solutions to each problem from 1975 onwards. An overview is given of the basic mathematical skills needed, and a list of books for further reading is provided. Working through the exercises provides a valuable source of extension and enrichment for all pupils and adults interested in mathematics.

Equations and Inequalities Jiri Herman 2012-12-06 A look at solving problems in three areas of classical elementary mathematics: equations and systems of equations of various kinds, algebraic inequalities, and elementary number theory, in particular divisibility and diophantine equations. In each topic, brief theoretical discussions are followed by carefully worked out examples of increasing difficulty, and by exercises which range from routine to rather more challenging problems. While it emphasizes some methods that are not usually covered in beginning university courses, the book nevertheless teaches techniques and skills which are useful beyond the specific topics covered here. With approximately 330 examples and 760 exercises.

Problem-Solving Through Problems Loren C. Larson 2012-12-06 This is a practical anthology of some of the best elementary problems in different branches of mathematics. Arranged by subject, the problems highlight the most common problem-solving techniques encountered in undergraduate mathematics. This book teaches the important principles and broad strategies for coping with the experience of solving problems. It has been found very helpful for students preparing for the Putnam exam.

It's a Numberful World Eddie Woo 2019-09-03 2021 Mathical Honor Book Why aren't left-handers extinct? What makes a rainbow round? How is a pancreas . . . like a pendulum? Publisher's note: *It's a Numberful World* was published in Australia under the title *Woo's Wonderful World of Maths*. These may not look like math questions, but they are—because they all have to do with patterns. And mathematics, at heart, is the study of patterns. That realization changed Eddie Woo's life—by turning the "dry" subject he dreaded in high school into a boundless quest for discovery. Now an award-winning math teacher, Woo sees patterns everywhere: in the "branches" of blood vessels and lightning, in the growth of a savings account and a sunflower, even in his morning cup of tea! Here are twenty-six bite-size chapters on the hidden mathematical marvels that encrypt our email, enchant our senses, and even keep us alive—from the sine waves we hear as "music" to the mysterious golden ratio. This book will change your mind about what math can be. We are all born mathematicians—and *It's a Numberful World*.

Teaching Secondary School Mathematics: Techniques And Enrichment Alfred S Posamentier 2020-09-18 The primary aim of this book is to provide teachers of mathematics with all the tools they would need to conduct most effective mathematics instruction. The book guides teachers through the all-important planning process, which includes short and long-term planning as well as constructing most effective lessons, with an emphasis on motivation, classroom management, emphasizing problem-solving techniques, assessment, enriching instruction for students at all levels, and introducing relevant extracurricular mathematics activities. Technology applications are woven throughout the text. A unique feature of this book is the second half, which provides 125 highly motivating enrichment units for all levels of secondary school mathematics. Many years of proven success makes this book essential for both pre-service and in-service mathematics teachers.

Counting and Configurations Jiri Herman 2013-03-14 This book presents methods of solving problems in three areas of elementary combinatorial mathematics: classical combinatorics, combinatorial arithmetic, and combinatorial geometry. Brief theoretical discussions are immediately followed by carefully worked-out examples of increasing degrees of difficulty and by exercises that range from routine to rather challenging. The book features approximately 310 examples and 650 exercises.

The Mathematical Coloring Book Alexander Soifer 2008-10-13 This book provides an exciting history of the discovery of Ramsey Theory, and contains new research along with rare photographs of the mathematicians who developed this theory, including Paul Erdős, B.L. van der Waerden, and Henry Baudet.

Challenging Problems in Algebra Alfred S. Posamentier 2012-05-04 Over 300 unusual problems, ranging from easy to difficult, involving equations and inequalities, Diophantine equations, number theory, quadratic equations, logarithms, more. Detailed solutions, as well as brief answers, for all problems are provided.

A Second Step to Mathematical Olympiad Problems Derek Allan Holton 2011 The International Mathematical Olympiad (IMO) is an annual international mathematics competition held for pre-collegiate students. It is also the oldest of the international science olympiads, and competition for places is particularly fierce. This book is an amalgamation of the booklets originally produced to guide students intending to contend for placement on their country's IMO team. See also *A First Step to Mathematical Olympiad Problems* which was published in 2009. The material contained in this book provides an introduction to the main mathematical topics covered in the IMO, which are: Combinatorics, Geometry and Number Theory. In addition, there is a special emphasis on how to approach unseen questions in Mathematics, and model the writing of proofs. Full answers are given to all questions. Though *A Second Step to Mathematical Olympiad Problems* is written from the perspective of a mathematician, it is written in a way that makes it easily comprehensible to adolescents. This book is also a must-read for coaches and instructors of mathematical competitions.

Mathematics Galore! Christopher Budd 2001-05-17 Provides materials for eight Saturday workshops to excite teenagers about the possibilities and fun of mathematics. Each chapter begins with detailed historical and mathematical information on the subject for delivering a talk, then lists exercises for small group work. Topics include network theory for mazes, trigonometry for sundials, the design of castles, and code breaking. Annotation copyrighted by Book News, Inc., Portland, OR

The Cauchy-Schwarz Master Class J. Michael Steele 2004-04-26 This 2004 book presents a fascinating collection of problems related to the Cauchy-Schwarz inequality and coaches readers through solutions.

Mathematics via Problems Arkadiy Skopenkov 2021-02-11 This book is a translation from Russian of Part I of the book *Mathematics Through Problems: From Olympiads and Math Circles to Profession*. The other two parts, *Geometry* and *Combinatorics*, will be published soon. The main goal of this book is to develop important parts of mathematics through problems. The author tries to put together sequences of problems that allow high school students (and some undergraduates) with strong interest in mathematics to discover and recreate much of elementary mathematics and start edging into the sophisticated world of topics such as group theory, Galois theory, and so on, thus building a bridge (by showing that there is no gap) between standard high school exercises and more intricate and abstract concepts in mathematics. Definitions and/or references for material that is not standard in the school curriculum are included. However, many topics in the book are difficult when you start learning them from scratch. To help with this, problems are carefully arranged to provide gradual introduction into each subject. Problems are often accompanied by hints and/or complete solutions. The book is based on classes taught by the author at different times at the Independent University of Moscow, at a number of Moscow schools and math circles, and at various summer schools. It can be used by high school students and undergraduates, their teachers, and organizers of summer camps and math circles. In the interest of fostering a greater awareness and appreciation of mathematics and its connections to other disciplines and everyday life, MSRI and the AMS are publishing books in the *Mathematical Circles Library* series as a service to young people, their parents and teachers, and the mathematics profession.

The USSR Olympiad Problem Book D. O. Shklarsky 2013-04-15 Over 300 challenging problems in algebra, arithmetic, elementary number theory and trigonometry, selected from *Mathematical Olympiads* held at Moscow University. Only high school math needed. Includes complete solutions. Features 27 black-and-white illustrations. 1962 edition.

Euclidean Geometry in Mathematical Olympiads Evan Chen 2021-08-23 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.

Introduction to Counting and Probability David Patrick 2007-08-01

A Gentle Introduction to the American Invitational Mathematics Exam Scott A. Annin 2015-11-16 This book is a celebration of mathematical problem solving at the level of the high school American Invitational Mathematics Examination. There is no other book on the market focused on the AIME. It is intended, in part, as a resource for comprehensive study and practice for the AIME competition for students, teachers, and mentors. After all, serious AIME contenders and competitors should seek a lot of practice in order to succeed. However, this book is also intended for anyone who enjoys solving problems

as a recreational pursuit. The AIME contains many problems that have the power to foster enthusiasm for mathematics – the problems are fun, engaging, and addictive. The problems found within these pages can be used by teachers who wish to challenge their students, and they can be used to foster a community of lovers of mathematical problem solving! There are more than 250 fully-solved problems in the book, containing examples from AIME competitions of the 1980's, 1990's, 2000's, and 2010's. In some cases, multiple solutions are presented to highlight variable approaches. To help problem-solvers with the exercises, the author provides two levels of hints to each exercise in the book, one to help stuck starters get an idea how to begin, and another to provide more guidance in navigating an approach to the solution.

Lecture Notes on Mathematical Olympiad Courses Jiagu Xu 2010 Olympiad mathematics is not a collection of techniques of solving mathematical problems but a system for advancing mathematical education. This book is based on the lecture notes of the mathematical Olympiad training courses conducted by the author in Singapore. Its scope and depth not only covers and exceeds the usual syllabus, but introduces a variety concepts and methods in modern mathematics. In each lecture, the concepts, theories and methods are taken as the core. The examples are served to explain and enrich their intension and to indicate their applications. Besides, appropriate number of test questions is available for reader's practice and testing purpose. Their detailed solutions are also conveniently provided. The examples are not very complicated so that readers can easily understand. There are many real competition questions included which students can use to verify their abilities. These test questions are from many countries, e.g. China, Russia, USA, Singapore, etc. In particular, the reader can find many questions from China, if he is interested in understanding mathematical Olympiad in China. This book serves as a useful textbook of mathematical Olympiad courses, or as a reference book for related teachers and researchers. Errata(s). Errata. Sample Chapter(s). Lecture 1: Operations on Rational Numbers (145k). Request Inspection Copy. Contents: ∴ Operations on Rational Numbers; Linear Equations of Single Variable; Multiplication Formulae; Absolute Value and Its Applications; Congruence of Triangles; Similarity of Triangles; Divisions of Polynomials; Solutions to Testing Questions; and other chapters. Readership: Mathematics students, school teachers, college lecturers, university professors; mathematics enthusiasts

The Mathematical Olympiad Handbook Anthony Gardiner 1997

Mathematics Is Not a Spectator Sport George McArtney Phillips 2005-07-15 Compared to other popular math books, there is more algebraic manipulation, and more applications of algebra in number theory and geometry Presents an exciting variety of topics to motivate beginning students May be used as an introductory course or as background reading

Problem-Solving and Selected Topics in Number Theory Michael Th. Rassias 2010-11-16 The book provides a self-contained introduction to classical Number Theory. All the proofs of the individual theorems and the solutions of the exercises are being presented step by step. Some historical remarks are also presented. The book will be directed to advanced undergraduate, beginning graduate students as well as to students who prepare for mathematical competitions (ex. Mathematical Olympiads and Putnam Mathematical competition).

Colorado Mathematical Olympiad Alexander Soifer 1994

Methods of Solving Complex Geometry Problems Ellina Grigorieva 2013-08-13 This book is a unique collection of challenging geometry problems and detailed solutions that will build students' confidence in

mathematics. By proposing several methods to approach each problem and emphasizing geometry's connections with different fields of mathematics, *Methods of Solving Complex Geometry Problems* serves as a bridge to more advanced problem solving. Written by an accomplished female mathematician who struggled with geometry as a child, it does not intimidate, but instead fosters the reader's ability to solve math problems through the direct application of theorems. Containing over 160 complex problems with hints and detailed solutions, *Methods of Solving Complex Geometry Problems* can be used as a self-study guide for mathematics competitions and for improving problem-solving skills in courses on plane geometry or the history of mathematics. It contains important and sometimes overlooked topics on triangles, quadrilaterals, and circles such as the Menelaus-Ceva theorem, Simson's line, Heron's formula, and the theorems of the three altitudes and medians. It can also be used by professors as a resource to stimulate the abstract thinking required to transcend the tedious and routine, bringing forth the original thought of which their students are capable. *Methods of Solving Complex Geometry Problems* will interest high school and college students needing to prepare for exams and competitions, as well as anyone who enjoys an intellectual challenge and has a special love of geometry. It will also appeal to instructors of geometry, history of mathematics, and math education courses.

Mathematical Olympiad in China (2009-2010) Bin Xiong 2013 The International Mathematical Olympiad (IMO) is a competition for high school students. China has taken part in the IMO 21 times since 1985 and has won the top ranking for countries 14 times, with a multitude of golds for individual students. The six students China has sent every year were selected from 20 to 30 students among approximately 130 students who took part in the annual China Mathematical Competition during the winter months. This volume of comprises a collection of original problems with solutions that China used to train their Olympiad team in the years from 2009 to 2010. Mathematical Olympiad problems with solutions for the years 2002-2008 appear in an earlier volume, *Mathematical Olympiad in China*."