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Mathematical Olympiad in China (2019-2020) Bin Xiong 2022-08 "A collection of problems and solutions of the major mathematical competitions in China. Provides a glimpse of how the China national team is selected and formed"--

China-us Science And Technology Competitiveness Assessment Report (2020) Debin Du 2021-04-23 Since 2018, the China-US trade dispute has been escalating. Science and technology (S&T) and innovation are not only the underlying areas of trade dispute between the two largest economic powers, but also the critical factors in determining whether China can win this 'trade war'. Notably, after the 'ZTE event' and 'Huawei event', spotlight has been placed on the gap between the two countries in S&T. This book will introduce the competitiveness in S&T (a multifaceted concept) and its evaluation index. This is followed by a comparison of differences in S&T development in China and the United States, in the areas of human resources, financial resources, scientific research, technological innovation and internationalization, based on detailed and authoritative statistical data, as well as in-depth analysis of high-tech industries, such as the equipment manufacturing and information and communications technology.

Sequences And Mathematical Induction:in Mathematical Olympiad And Competitions (2nd Edition) Zhigang Feng 2019-10-08 In China, lots of excellent maths students takes an active part in various maths contests and the best six senior high school students will be selected to form the IMO National Team to compete in the International Mathematical Olympiad. In the past ten years, China's IMO Team has achieved outstanding results — they have won the first place almost every year.The author is one of the senior coaches of China's IMO National Team, he is the headmaster of Shanghai senior high school which is one of the best high schools of China. In the past decade, the students of this school have won the IMO gold medals almost every year.The author attempts to use some common characteristics of sequence and mathematical induction to fundamentally connect Math Olympiad problems to particular branches of mathematics. In doing so, the author hopes to reveal the beauty and joy involved with math exploration and at the same time, attempts to arouse readers' interest of learning math and invigorate their courage to challenge themselves with difficult problems.

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.

Mathematical Olympiad in China (2017-2018) Bin Xiong 2022-08 In China, lots of excellent maths students take an active part in various maths contests and the best six senior high school students will be

selected to form the IMO National Team to compete in the International Mathematical Olympiad. In the past ten years China's IMO Team has achieved outstanding results -- they won the first place almost every year.The authors of this book are coaches of the China national team. They are Xiong Bin, Yao Yijun, Qu Zhenhua, et al. Those who took part in the translation work are Wang Shanping and Chen Haoran.The materials of this book come from a series of two books (in Chinese) on Forward to IMO: A Collection of Mathematical Olympiad Problems (2017-2018). It is a collection of problems and solutions of the major mathematical competitions in China. It provides a glimpse of how the China national team is selected and formed.

Mathematical Olympiad in China (2017–2018): Problems and Solutions Xiong Bin
Hungarian Mathematical Olympiad (1964-1997): Problems and Solutions Fusheng Leng, Xin Li and Huawei Zhu
Contemporary Challenges and Solutions for Mobile and Multimedia Technologies Khalil, Ismail 2012-10-31 Mobile computing and multimedia technologies continue to expand and change the way we interact with each other on a business and social level. With the increased use of mobile devices and the exchange of information over wireless networks, information systems are able to process and transmit multimedia data in various areas. Contemporary Challenges and Solutions for Mobile and Multimedia Technologies provides comprehensive knowledge on the growth and changes in the field of multimedia and mobile technologies. This reference source highlights the advancements in mobile technology that are beneficial for developers, researchers, and designers.

Problems of Number Theory in Mathematical Competitions Hong-Bing Yu 2010 Number theory is an important research field of mathematics. In mathematical competitions, problems of elementary number theory occur frequently. These problems use little knowledge and have many variations.Tns. They are flexible and diverse. In this book, the author introduces some basic concepts and methods in elementary number theory via problems in mathematical competitions. Readers are encouraged to try to solve the problems by themselves before they read the given solutions of examples. Only in this way can they truly appreciate the tricks of problem-solving.

Mathematical Olympiad In China (2009-2010): Problems And Solutions Xiong Bin 2013-02-20 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.

Atmosphere-ocean Modeling: Coupling And Couplers Carlos Roberto Mechoso 2021-07-27 Coupled atmosphere-ocean models are at the core of numerical climate models. There is an extraordinarily broad class of coupled atmosphere-ocean models ranging from sets of equations that can be solved analytically to highly detailed representations of Nature requiring the most advanced computers for execution. The models are applied to subjects including the conceptual understanding of Earth's climate, predictions that support human activities in a variable climate, and projections aimed to prepare society for climate change. The

present book fills a void in the current literature by presenting a basic and yet rigorous treatment of how the models of the atmosphere and the ocean are put together into a coupled system. The text of the book is divided into chapters organized according to complexity of the components that are coupled. Two full chapters are dedicated to current efforts on the development of generalist couplers and coupling methodologies all over the world.

Mathematical Olympiads 1999-2000 Titu Andreescu 2002-05-16 Challenging problems in maths plus solutions to those featured in the earlier Olympiad book.

Algorithms: Design Techniques And Analysis (Second Edition) M H Alsuwaiyel 2021-11-08 Problem solving is an essential part of every scientific discipline. It has two components: (1) problem identification and formulation, and (2) the solution to the formulated problem. One can solve a problem on its own using ad hoc techniques or by following techniques that have produced efficient solutions to similar problems. This required the understanding of various algorithm design techniques, how and when to use them to formulate solutions, and the context appropriate for each of them.This book presents a design thinking approach to problem solving in computing — by first using algorithmic analysis to study the specifications of the problem, before mapping the problem on to data structures, then on to the situatable algorithms. Each technique or strategy is covered in its own chapter supported by numerous examples of problems and their algorithms. The new edition includes a comprehensive chapter on parallel algorithms, and many enhancements.

Selected Problems of the Vietnamese Mathematical Olympiad (1962-2009) Hai Chau Le 2010 Vietnam has actively organized the National Competition in Mathematics and since 1962, the Vietnamese Mathematical Olympiad (VMO). On the global stage, Vietnam has also competed in the International Mathematical Olympiad (IMO) since 1974 and constantly emerged as one of the top ten. To inspire and further challenge readers, we have gathered in this book selected problems of the VMO from 1962 to 2008. A number of Selection Test problems are also included to aid in the formation and training of a national team for IMO. The book is highly useful for high school students and teachers, coaches and instructors preparing for mathematical olympiads, as well as non-experts simply interested in having the edge over their opponents in mathematical competitions.

Methods and Techniques for Proving Inequalities Yong Su 2015 In China, lots of excellent maths students take an active interest in various maths contests and the best six senior high school students will be selected to form the IMO National Team to compete in the International Mathematical Olympiad. In the past ten years China's IMO Team has achieved outstanding results -- they won the first place almost every year. The authors are coaches of China's IMO National Team, whose students have won many gold medals many times in IMO. This book is part of the Mathematical Olympiad Series which discusses several aspects related to maths contests, such as algebra, number theory, combinatorics, graph theory and geometry. The book explains many basic techniques for proving inequalities such as direct comparison, method of magnifying and reducing, substitution method, construction method, and so on.

Mathematical Olympiad in China Bin Xiong 2007 The International Mathematical Olympiad (IMO) is a competition for high school students. China has taken part in IMO twenty times since 1985 and has won the top ranking for countries thirteen times, with a multitude of golds for individual students. The 6 students China sent every year were selected from 20 to 30 students among approximately 130 students who take part in the China Mathematical Competition during the winter months. This volume comprises a collection of original problems with solutions that China used to train their Olympiad team in the years from 2003 to 2006.

School Mathematics Textbooks In China: Comparative Studies And Beyond Jianpan Wang 2021-01-28 Our collected work contains mathematics education research papers. Comparative studies of school textbooks cover content selection, compilation style, representation method, design of examples and exercises, mathematics investigation, the use of information technology, and composite difficulty level, to name a few. Other papers included are about representation of basic mathematical thought in school textbooks, a study on the compilation features of elementary school textbooks, and a survey of the effect of using new elementary school textbooks.

Combinatorial Problems in Mathematical Competitions Yao Zhang 2011 Annotation. This text provides basic knowledge on how to solve combinatorial problems in mathematical competitions, and also introduces

important solutions to combinatorial problems and some typical problems with often-used solutions.

Mathematical Olympiad in China (2007-2008) Bin Xiong 2009 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 comprises a collection of original problems with solutions that China used to train their Olympiad team in the years from 2006 to 2008. Mathematical Olympiad problems with solutions for the years 2002?2006 appear in an earlier volume, Mathematical Olympiad in China.

Mathematical Olympiad In China (2019-2020): Problems And Solutions Bin Xiong 2022-09-29 In China, lots of excellent maths students take an active part in various maths contests and the best six senior high school students will be selected to form the IMO National Team to compete in the International Mathematical Olympiad. In the past ten years China's IMO Team has achieved outstanding results — they won the first place almost every year.The authors of this book are coaches of the China national team. They are Xiong Bin, Yao Yijun, Qu Zhenhua et al. Those who took part in the translation work are Zhao Wei and Zhou Tianyou.The materials of this book come from a series of two books (in Chinese) on Forward to IMO: A Collection of Mathematical Olympiad Problems (2019-2020). It is a collection of problems and solutions of the major mathematical competitions in China. It provides a glimpse of how the China national team is selected and formed.

Mathematical Olympiad in China (2007-2008)

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 2002OCo2008 appear in an earlier volume, Mathematical Olympiad in China."

Blockchain: Empowering Digital Economy Yang Yan 2021-07-13 Big data has been upgraded to our national strategy and has become a catalyst for national and local economic development. With the further promotion of big data and artificial intelligence (AI), the new business model needs to optimize and upgrade. The integration of the blockchain industry will fully implement the digital China strategy and promote the application of big data in China.This unique compendium gives a comprehensive understanding of the blockchain content through the path of technological innovation. It enables readers to fully understand the role of blockchain in promoting the digital economy.The volume will be a useful reference guide for relevant personnel in state ministries and commissions, state-owned enterprises, big data, AI, as well as teachers, researchers and students in higher education institutions.

Radioactive Waste Management In The 21st Century William R Roy 2021-06-10 The safe management of radioactive wastes is of paramount importance in gaining both governmental and societal support for nuclear energy. The scope of this new textbook is to provide a comprehensive perspective on all types of radioactive wastes as to how they are created, classified, characterized, and disposed.Written to emphasize how geology and radionuclide chemistry impact waste management, this book is primarily designed for engineers who have little background in geology with low-level wastes, decommissioning wastes, high-level wastes and spent nuclear fuel.This textbook provides the most up-to-date information available on waste management in several countries. The content of this work includes transporting radioactive materials to disposal facilities. The textbook cites numerous case studies to illustrate past practices, current methodologies and to provide insights on how radioactive wastes may be managed in the future. An international perspective on waste management is also provided to help the readers better understand the diversity in approaches while highlighting what many countries have in common. Review questions for classroom use are provided at the end of each chapter.

North China and Japanese Expansion 1933-1937 Marjorie Dryburgh 2013-11-05 This work draws on a

wide range of Chinese and Japanese sources to analyse the uncertain loyalties and complex internal pressures that drove Sino-Japanese interaction in prewar north China. It examines the shifting understandings of the North China problem in its practical, political and moral aspects, and challenges existing assumptions concerning Chinese relations with Japan and their impact on domestic politics.

Problems and Solutions in Mathematical Olympiad Shi-Xiong Liu 2022-04-08 The series is edited by the head coaches of China's IMO National Team. Each volume, catering to different grades, is contributed by the senior coaches of the IMO National Team. The Chinese edition has won the award of Top 50 most influential educational brand in China. The series is in line with the mathematics cognition and intellectual development level of the students in the corresponding grade. The volume lines up the topics in each chapter and introduces a variety of concepts and methods to provide with the knowledge, then gradually transitions to the competition level. The content covers all the hot topics of the competition. In each chapter, there are packed with many problems including some real competition questions which students can use to verify their abilities. Selected detailed answers are provided. Some of the solutions are from national training team and national team members, their wonderful solutions being the feature of this series.

Mathematical Olympiad In China (2015-2016): Problems And Solutions Bin Xiong 2022-06-23 In China, lots of excellent maths students takes an active part in various maths contests and the best six senior high school students will be selected to form the IMO National Team to compete in the International Mathematical Olympiad. In the past ten years China's IMO Team has achieved outstanding results — they have always been among the top 3, in fact in the first place most of the time.The authors of this book are coaches of the China national team. They are Xiong Bin, Yao Yijun, Qu Zhenhua, et al. The translator of this book is Chen Xiaomin.The materials of this book come from a series of two books (in Chinese) on Forward to IMO: A Collection of Mathematical Olympiad Problems (2015-2016). It is a collection of problems and solutions of the major mathematical competitions in China. It provides a glimpse of how the China national team is selected and formed.

Graph Theory Bin Xiong 2010 Trouble in the Barker's Class

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.

Intelligent Techniques in Engineering Management Cengiz Kahraman 2015-05-05 This book presents recently developed intelligent techniques with applications and theory in the area of engineering management. The involved applications of intelligent techniques such as neural networks, fuzzy sets, Tabu search, genetic algorithms, etc. will be useful for engineering managers, postgraduate students, researchers, and lecturers. The book has been written considering the contents of a classical engineering management book but intelligent techniques are used for handling the engineering management problem areas. This comprehensive characteristics of the book makes it an excellent reference for the solution of complex problems of engineering management. The authors of the chapters are well-known researchers with their previous works in the area of engineering management.

Connected and Autonomous Vehicles in Smart Cities Hussein T. Mouftah 2020-12-17 This book presents a comprehensive coverage of the five fundamental yet intertwined pillars paving the road towards the future of connected autonomous electric vehicles and smart cities. The connectivity pillar covers all the latest advancements and various technologies on vehicle-to-everything (V2X) communications/networking and vehicular cloud computing, with special emphasis on their role towards vehicle autonomy and smart cities

applications. On the other hand, the autonomy track focuses on the different efforts to improve vehicle spatiotemporal perception of its surroundings using multiple sensors and different perception technologies. Since most of CAVs are expected to run on electric power, studies on their electrification technologies, satisfaction of their charging demands, interactions with the grid, and the reliance of these components on their connectivity and autonomy, is the third pillar that this book covers. On the smart services side, the book highlights the game-changing roles CAV will play in future mobility services and intelligent transportation systems. The book also details the ground-breaking directions exploiting CAVs in broad spectrum of smart cities applications. Example of such revolutionary applications are autonomous mobility on-demand services with integration to public transit, smart homes, and buildings. The fifth and final pillar involves the illustration of security mechanisms, innovative business models, market opportunities, and societal/economic impacts resulting from the soon-to-be-deployed CAVs. This book contains an archival collection of top quality, cutting-edge and multidisciplinary research on connected autonomous electric vehicles and smart cities. The book is an authoritative reference for smart city decision makers, automotive manufacturers, utility operators, smart-mobility service providers, telecom operators, communications engineers, power engineers, vehicle charging providers, university professors, researchers, and students who would like to learn more about the advances in CAEVs connectivity, autonomy, electrification, security, and integration into smart cities and intelligent transportation systems.

Graph Theory Bin Xiong 2010-03-17 In 1736, the mathematician Euler invented graph theory while solving the Konigsberg seven-bridge problem. Over 200 years later, graph theory remains the skeleton content of discrete mathematics, which serves as a theoretical basis for computer science and network information science. This book introduces some basic knowledge and the primary methods in graph theory by many interesting problems and games.

Trigonometric Functions and Complex Numbers Desheng Yang 2016-09-21 Trigonometric Functions and Complex Numbers covers the followings areas in the International Mathematical Olympiad (IMO) and other mathematical competitions. Trigonometric identity, graphs and properties of trigonometric equations, inverse trigonometric functions and trigonometric equations, solutions of triangles, trigonometric substitution and trigonometric inequality;The concept and operation of complex numbers, trigonometric form of a complex number, complex number and equation. The contents are essential for the IMO. A good help for students who want to improve in these areas. Request Inspection Copy

Advances in Natural Computation Lipo Wang 2005-08-25 This book and its sister volumes, i.e., LNCS vols. 3610, 3611, and 3612, are the proceedings of the 1st International Conference on Natural Computation (ICNC 2005), jointly held with the 2nd International Conference on Fuzzy Systems and Knowledge Discovery (FSKD 2005, LNAI vols. 3613 and 3614) from 27 to 29 August 2005 in Changsha, Hunan, China.

Mathematical Olympiad In China (2011-2014): Problems And Solutions Bin Xiong 2018-03-22 The International Mathematical Olympiad (IMO) is a very important competition for high school students. China has taken part in the IMO 31 times since 1985 and has won the top ranking for countries 19 times, with a multitude of gold medals for individual students. The six students China has sent every year were selected from 60 students among approximately 300 students who took part in the annual China Mathematical Competition during the winter months.This book includes the problems and solutions of the most important mathematical competitions from 2010 to 2014 in China, such as China Mathematical Competition, China Mathematical Olympiad, China Girls' Mathematical Olympiad. These problems are almost exclusively created by the experts who are engaged in mathematical competition teaching and researching. Some of the solutions are from national training team and national team members, their wonderful solutions being the feature of this book. This book is useful to mathematics fans, middle school students engaged in mathematical competition, coaches in mathematics teaching and teachers setting up math elective courses.

The Three-Body Problem Cixin Liu 2014-11-11 Soon to be a Netflix Original Series! "War of the Worlds for the 21st century." – Wall Street Journal The Three-Body Problem is the first chance for English-speaking readers to experience the Hugo Award-winning phenomenon from China's most beloved science fiction author, Liu Cixin. Set against the backdrop of China's Cultural Revolution, a secret military project sends signals into space to establish contact with aliens. An alien civilization on the brink of destruction captures the signal and plans to invade Earth. Meanwhile, on Earth, different camps start forming, planning to either welcome the

superior beings and help them take over a world seen as corrupt, or to fight against the invasion. The result is a science fiction masterpiece of enormous scope and vision. The Three-Body Problem Series The Three-Body Problem The Dark Forest Death's End Other Books Ball Lightning Supernova Era To Hold Up The Sky (forthcoming) At the Publisher's request, this title is being sold without Digital Rights Management Software (DRM) applied.

Ant Colony Optimization Marco Dorigo 2004-06-04 An overview of the rapidly growing field of ant colony optimization that describes theoretical findings, the major algorithms, and current applications. The complex social behaviors of ants have been much studied by science, and computer scientists are now finding that these behavior patterns can provide models for solving difficult combinatorial optimization problems. The attempt to develop algorithms inspired by one aspect of ant behavior, the ability to find what computer scientists would call shortest paths, has become the field of ant colony optimization (ACO), the most successful and widely recognized algorithmic technique based on ant behavior. This book presents an overview of this rapidly growing field, from its theoretical inception to practical applications, including descriptions of many available ACO algorithms and their uses. The book first describes the translation of observed ant behavior into working optimization algorithms. The ant colony metaheuristic is then introduced and viewed in the general context of combinatorial optimization. This is followed by a detailed description and guide to all major ACO algorithms and a report on current theoretical findings. The book surveys ACO applications now in use, including routing, assignment, scheduling, subset, machine learning, and bioinformatics problems. AntNet, an ACO algorithm designed for the network routing problem, is described in detail. The authors conclude by summarizing the progress in the field and outlining future research directions. Each chapter ends with bibliographic material, bullet points setting out important ideas covered in the chapter, and exercises. Ant Colony Optimization will be of interest to academic and industry researchers, graduate students, and practitioners who wish to learn how to implement ACO algorithms.

The William Lowell Putnam Mathematical Competition Gerald L. Alexanderson 2003 The Putnam Competition has since 1928 been providing a challenge to gifted college mathematics students. This book, the second of the Putnam Competition volumes, contains problems with their solutions for the years 1965-1984. Additional solutions are presented for many of the problems. Included is an essay on recollections of the first Putnam Exam by Herbert Robbins, as well as appendices listing the winning teams and students from 1965 through 1984. This volume offers the problem solver an enticing sample of challenging problems and their solutions. In 1980, the MAA published the first William Lowell Putnam

Mathematical Competition book, covering the contest from 1938 to 1964. In 2002 the third of the Putnam problem books appeared, covering the years 1985 through 2000. All three of these books belong on the bookshelf of students, teachers, and all interested in problem solving.

The 19th International Conference on Industrial Engineering and Engineering Management Ershi Qi 2013-06-25 The International Conference on Industrial Engineering and Engineering Management is sponsored by the Chinese Industrial Engineering Institution, CMES, which is the only national-level academic society for Industrial Engineering. The conference is held annually as the major event in this arena. Being the largest and the most authoritative international academic conference held in China, it provides an academic platform for experts and entrepreneurs in the areas of international industrial engineering and management to exchange their research findings. Many experts in various fields from China and around the world gather together at the conference to review, exchange, summarize and promote their achievements in the fields of industrial engineering and engineering management. For example, some experts pay special attention to the current state of the application of related techniques in China as well as their future prospects, such as green product design, quality control and management, supply chain and logistics management to address the need for, amongst other things low-carbon, energy-saving and emission-reduction. They also offer opinions on the outlook for the development of related techniques. The proceedings offers impressive methods and concrete applications for experts from colleges and universities, research institutions and enterprises who are engaged in theoretical research into industrial engineering and engineering management and its applications. As all the papers are of great value from both an academic and a practical point of view, they also provide research data for international scholars who are investigating Chinese style enterprises and engineering management.

Problems and Solutions in Mathematical Olympiad Bin Xiong 2022-04-07 The series is edited by the head coaches of China's IMO National Team. Each volume, catering to different grades, is contributed by the senior coaches of the IMO National Team. The Chinese edition has won the award of Top 50 most influential educational brand in China. The series is in line with the mathematics cognition and intellectual development level of the students in the corresponding grade. The volume lines up the topics in each chapter and introduces a variety of concepts and methods to provide with the knowledge, then gradually transitions to the competition level. The content covers all the hot topics of the competition. In each chapter, there are packed with many problems including some real competition questions which students can use to verify their abilities. Selected detailed answers are provided. Some of the solutions are from national training team and national team members, their wonderful solutions being the feature of this series.