

Singapore Mathematical Olympiads

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.

Mathematical Olympiad Treasures aims at building a bridge between ordinary high school exercises and more sophisticated, intricate and abstract concepts in undergraduate mathematics. The book contains a stimulating collection of problems in the subjects of algebra, geometry, trigonometry, number theory and combinatorics. While it may be considered a sequel to "Mathematical Olympiad Challenges," the focus is on engaging a wider audience to apply techniques and strategies to real-world problems. Throughout the book students are encouraged to express their ideas, conjectures, and conclusions in writing. The goal is to help readers develop a host of new mathematical tools that will be useful beyond the classroom and in a number of disciplines.

Xinjiapo Xiao Xue Shu Xue Ao Lin Pi Ke

Mathematical Olympiad In China (2011-2014): Problems And Solutions

Inequalities

4th Annual 1993

Singapore Mathematical Olympiad for Primary Schools

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.

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.

2nd Annual 1991

Singapore Mathematical Olympiads 2005-2009

Singapore Math, Grade 3

Mathematical Olympiad Treasures

The Singapore Journey

Challenge Your Brain Volume 1 is specially written for primary 3 pupils preparing the GEP Selection Test. It is also a useful and strategic tool for primary 3 and 4 pupils to build a sound foundation for future Math Olympiad competitions. The series is conceptualised by Loh Cheng Yee, an experienced GEP educator and trainer for various Olympiad competitions. As an educator and consultant, her vast experience includes teaching Elementary Mathematics, Additional Mathematics and Mathematics Olympiad in Catholic High School and The Chinese High School (now the Hwa Chong Institution) for 18 years. She was also a member of the Question Committee of the Singapore-Asia Pacific Mathematical Olympiad for Primary Schools, formerly known as the Singapore Mathematical Olympiad for Primary Schools (SMOPS).

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."

Mathematical Olympiad in China (2007-2008)

Singapore Mathematical Olympiads 2007

1999

Mathematics Education

Singapore Mathematical Olympiad for Primary Schools 1990

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

This new volume of the Mathematical Olympiad Series focuses on the topic of geometry. Basic and advanced theorems commonly seen in Mathematical Olympiad are introduced and illustrated with plenty of examples. Special techniques in solving various types of geometrical problems are also introduced, while the authors elaborate extensively on how to acquire an insight and develop strategies in tackling difficult geometrical problems. This book is suitable for any reader with elementary geometrical knowledge at the lower secondary level. Each chapter includes sufficient scaffolding and is comprehensive enough for the purpose of self-study. Readers who complete the chapters on the basic theorems and techniques would acquire a good foundation in geometry and may attempt to solve many geometrical problems in various mathematical competitions. Meanwhile, experienced contestants in Mathematical Olympiad competitions will find a large collection of problems pitched at competitions at the international level, with opportunities to practise and sharpen their problem-solving skills in geometry.

Adventures in Problem Solving Problems and Solutions

Challenge Your Brain 2

Singapore Mathematical Olympiads 2006

Mathematical Olympiad in China (2009-2010)

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.

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 2002OCo2006 appear in an earlier volume, Mathematical Olympiad in China."

Insights and Strategies

6th Annual 1995

Challenge Your Brain 3

Lecture Notes on Mathematical Olympiad Courses

Challenge Your Brain Volume 3 is specially written for primary 6 pupils preparing the Singapore Mathematical Olympiad for Primary Schools (SMOPS). It can also be a good reference tool for GEP pupils and primary 6 pupils preparing PSLE Mathematics. The series is conceptualised by Loh Cheng Yee, an experienced GEP educator and trainer for various Olympiad competitions. As an educator and consultant, her vast experience includes teaching Elementary Mathematics, Additional Mathematics and Mathematics Olympiad in Catholic High School and The Chinese High School (now the Hwa Chong Institution) for 18 years. She was also a member of the Question Committee of the Singapore-Asia Pacific Mathematical Olympiad for Primary Schools, formerly known as the Singapore Mathematical Olympiad for Primary Schools (SMOPS).

Singapore Math creates a deep understanding of each key math concept, is a direct complement to the current textbooks used in Singapore,includes an introduction explaining the Singapore Math method, and includes step-by-step solutions in the answer key. Singapore Math, for students in grades 2 to 5, provides math practice while developing analytical and problem-solving skills. Learning objectives are provided to identify what students should know after completing each unit, and assessments are included to ensure that learners obtain a thorough understanding of mathematical concepts. Perfect as a supplement to classroom work, these workbooks will boost confidence in problem-solving and critical-thinking skills!

Singapore Secondary School Mathematical Olympiads, 1999-2000

1998

3rd Annual 1992

Singapore Mathematical Olympiads 2008

Maths Olympiad (Beginner P3 & P4) Unleash The Maths Olympian In You!

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.

Challenge Your Brain Volume 2 is specially written for primary 5 pupils preparing the National Mathematical Olympiad of Singapore (NMOS). It can also be a good reference tool for GEP pupils and primary 4 pupils. The series is conceptualised by Loh Cheng Yee, an experienced GEP educator and trainer for various Olympiad competitions. As an educator and consultant, her vast experience includes teaching Elementary Mathematics, Additional Mathematics and Mathematics Olympiad in Catholic High School and The Chinese High School (now the Hwa Chong Institution) for 18 years. She was also a member of the Question Committee of the Singapore-Asia Pacific Mathematical Olympiad for Primary Schools, formerly known as the Singapore Mathematical Olympiad for Primary Schools (SMOPS).

5th Annual 1994

For Junior Section

Selected Problems of the Vietnamese Mathematical Olympiad (1962–2009)

2000

Principles and Techniques in Combinatorics

A First Step to Mathematical Olympiad ProblemsWorld Scientific Publishing Company

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 th opponents in mathematical competitions.

Singapore Mathematical Olympiads 2005

Singapore Mathematical Olympiads 2001-2002

Challenge your Brain 1

Level 6

Singapore Mathematical Olympiads 2004

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 rearrangementinequality, 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.

Euclidean Geometry in Mathematical Olympiads

Singapore Mathematical Olympiads 1995-2004

