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COMPETITION MATERIALS

EXTENSION MATERIALS

INTERNATIONAL MATHEMATICS

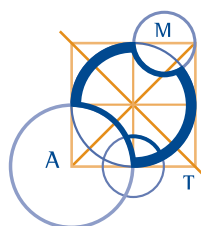
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AUSTRALIAN MATHEMATICS TRUST



COMPETITION MATERIALS



AMC PAST PAPER PACKS

Practice packs of Australian Mathematics Competition papers are a valuable tool in preparing for the competition. Each pack contains five papers, one each from 2008 to 2012, and an answer key.

MIDDLE PRIMARY

set of 5 Price: AU\$21.00

JUNIOR

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UPPER PRIMARY

set of 5 Price: AU\$21.00

INTERMEDIATE

set of 5 Price: AU\$21.00

SENIOR

set of 5 Price: AU\$21.00



AMC SCHOOL SETS

These bundles contain ten identical copies of an individual paper. These are ideal for classroom practice and for coaching colleges. Each set comes with an answer key. Sets are available in the Junior, Intermediate and Senior divisions to 2012 (some older years may not be available) and in the Middle and Upper Primary divisions from 2004 to 2012.

MIDDLE PRIMARY

set of 10 Price: AU\$13.50

JUNIOR

set of 10 Price: AU\$13.50

UPPER PRIMARY

set of 10 Price: AU\$13.50

INTERMEDIATE

set of 10 Price: AU\$13.50

SENIOR

set of 10 Price: AU\$13.50



AMC SOLUTIONS AND STATISTICS

WJ ATKINS & PJ TAYLOR

Published annually, these books provide a record of the AMC questions and solutions, and details of medallists and prizewinners. They also provide items such as levels of Australian response rates and analyses. There are two versions: one covers the secondary papers (Junior, Intermediate and Senior, A5 size) and the other covers the Middle and Upper Primary papers from 2004 (A4 size).

PRIMARY DIVISIONS

Price: AU\$37.00

SECONDARY DIVISIONS

Price: AU\$37.00

BOTH BOOKS

Price: AU\$60.00



PREVIOUS YEARS

PRIMARY DIVISIONS

Price: AU\$30.00

SECONDARY DIVISIONS

Price: AU\$30.00

BOTH BOOKS

Price AU\$56.00



AUSTRALIAN MATHEMATICS COMPETITION PRIMARY BOOK 1 2004–2008

Price: AU\$52.50

e-version

AUSTRALIAN MATHEMATICS COMPETITION PRIMARY BOOK 1 2004–2008

WJ ATKINS & PJ TAYLOR

This book consists of questions and full solutions from past AMC papers and is designed for use with students in Middle and Upper Primary. The questions are arranged in papers of 10 and are presented ready to be photocopied for classroom use.



AUSTRALIAN MATHEMATICS COMPETITION BOOK 1 1978–1984

Price: AU\$42.00

AUSTRALIAN MATHEMATICS COMPETITION BOOK 2 1985–1991

Price: AU\$42.00

AUSTRALIAN MATHEMATICS COMPETITION BOOK 3 1992–1998

Price: AU\$42.00

AUSTRALIAN MATHEMATICS COMPETITION BOOK 4 1999–2005

Price: AU\$42.00

AUSTRALIAN MATHEMATICS COMPETITION BOOK 5 2006–2012

Price: AU\$42.00

AUSTRALIAN MATHEMATICS COMPETITION BOOK 1 – 5

Price: AU\$140.00 (Sets not available until March 2013)

e-version

AUSTRALIAN MATHEMATICS COMPETITION BOOK 1 1978–1984

AUSTRALIAN MATHEMATICS COMPETITION BOOK 2 1985–1991

AUSTRALIAN MATHEMATICS COMPETITION BOOK 3 1992–1998

AUSTRALIAN MATHEMATICS COMPETITION BOOK 4 1999–2005

AUSTRALIAN MATHEMATICS COMPETITION BOOK 5 2006–2012

These books consist of questions, full solutions and statistics from past Junior, Intermediate and Senior AMC papers. The questions have been grouped by topic and ranked in order of difficulty. They are powerful tools for motivating and challenging students at all levels.



MATHEMATICS CONTESTS—THE AUSTRALIAN SCENE

Price: AU\$30.00

PJ BROWN, A DI PASQUALE & KL MCAVANEY

This book provides an annual record of the Australian Mathematical Olympiad Committee's program. Each book consists of the questions, solutions, results and statistics for: Challenge Stage of the Mathematics Challenge for Young Australians, Australian Intermediate Mathematics Olympiad, AMOC Senior Contest, Australian Mathematical Olympiad, Asian Pacific Mathematics Olympiad and International Mathematical Olympiad.

Editions from previous years are available for AU\$30.00 each.



CHALLENGE! 1991-1998 BOOK 1

Price: AU\$42.00

CHALLENGE! 1999-2006 BOOK 2

Price: AU\$42.00

CHALLENGE! 1991-1998 BOOK 1 and 2

Price: AU\$56.00

e-version

CHALLENGE! 1991-1998 BOOK 1

CHALLENGE! 1999-2006 BOOK 2

JB HENRY, J DOWSEY, AR EDWARDS, LJ MOTTERSHEAD, A NAKOS, G VARDARO & PJ TAYLOR

These books contain the problems and full solutions to all Junior and Intermediate problems set in the Mathematics Challenge for Young Australians, Challenge Stage, exactly as they were proposed at the time. They are highly recommended as a resource for classes from Years 7 to 10 and also for students who wish to develop their problem-solving skills. Most of the problems are graded within to allow students to access an easier idea before developing through a few levels.



PROBLEMS TO SOLVE IN MIDDLE SCHOOL MATHEMATICS

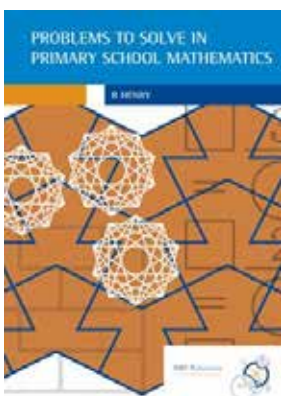
Price: AU\$52.50

e-version

PROBLEMS TO SOLVE IN MIDDLE SCHOOL MATHEMATICS

B HENRY, L MOTTERSHEAD, A EDWARDS, J MCINTOSH, A NAKOS, K SIMS, A THOMAS & G VARDARO

This collection of problems is designed for use with students in Years 5 to 8. Each of the 65 problems is presented ready to be photocopied for classroom use. With each problem there are teacher's notes and fully worked solutions. Some problems have extension problems presented with the teacher's notes. The problems are arranged in topics (Number, Counting, Space and Number, Space, Measurement, Time and Logic) and are roughly in order of difficulty within each topic. There is a chart suggesting which problem-solving strategies could be used with each problem.



PROBLEMS TO SOLVE IN PRIMARY SCHOOL MATHEMATICS

Price: AU\$52.50

e-version

PROBLEMS TO SOLVE IN PRIMARY SCHOOL MATHEMATICS

B HENRY

This collection of problems is designed for use with students in Years 3 to 5. Each of the problems is presented ready to be photocopied for classroom use. With each problem there are teacher's notes and fully worked solutions. The problems are arranged in topics (Number, Space, Measurement, and Logic) and are roughly in order of difficulty within each topic. There is a chart suggesting which problem-solving strategies could be used with each problem.



MATHEMATICAL PROBLEM SOLVING

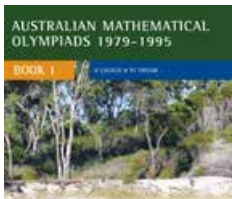
Price: AU\$52.50

e-version

MATHEMATICAL PROBLEM SOLVING

DAVID KENNEDY

This book presents strategies to enable students to problem solve. Students are, at all times, guided towards using a particular focus strategy to develop an appreciation of which might be an appropriate strategy to use. The strategies include Making an Organised List, Looking for a Pattern, Drawing a Picture or Diagram, Making the Problem Simpler, Acting Out the Problem, Using Models, Trial and Improvement, Making a Table, Working Backwards, Using Logic, Using Algebra and Taking a Different Viewpoint.



AUSTRALIAN MATHEMATICAL OLYMPIADS BOOK 1 1979-1995

Price: AU\$42.00

AUSTRALIAN MATHEMATICAL OLYMPIADS BOOK 2 1996-2011

Price: AU\$42.00

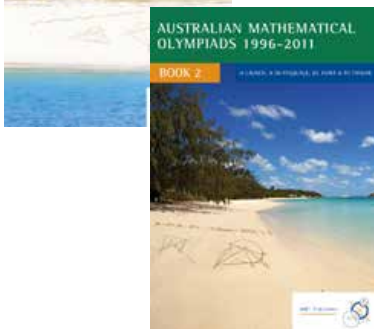
e-version

AUSTRALIAN MATHEMATICAL OLYMPIADS BOOK 1 1979-1995

AUSTRALIAN MATHEMATICAL OLYMPIADS BOOK 2 1996-2011

BOOK 1 H LAUSCH & PJ TAYLOR; BOOK 2 H LAUSCH, A DI PASQUALE, DC HUNT & PJ TAYLOR

These books are a complete collection of all Australian Mathematical Olympiad papers from the first in 1979 to 2011. Solutions to all problems are included and in a number of cases alternative solutions are also offered. The material is recommended for senior and advanced students.



EXTENSION MATERIALS



ENRICHMENT STUDENT NOTES

The Student Notes are supplied to students enrolled in the program along with other materials provided to their teacher. The six stages offer extension material for students from year 5 to year 10, in that order.

We are making these Notes available as a text book to interested parties for whom the program is not available. The notes refer to a problems booklet, which contains assessment problems for each year. If available, we will include a complimentary copy of a previous problems booklet but solutions to these are not available.

NEWTON

Price: AU\$42.00

Recommended for students of about Year 5 and 6, topics include polyominoes, arithmetricks, polyhedra, patterns and divisibility.

DIRICHLET

Price: AU\$42.00

Recommended for students of Year 6 or 7, topics include problem-solving techniques, tessellations, base five arithmetic, pattern seeking, rates and number theory.

EULER

Price: AU\$42.00

Recommended for students of about Year 7, topics include elementary number theory and geometry, counting and pigeonhole principle.

GAUSS

Price: AU\$42.00

Recommended for students of about Year 8, topics include Pythagoras' Theorem, Diophantine equations, counting techniques and congruences.

NOETHER

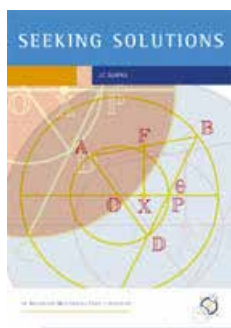
Price: AU\$42.00

Recommended for students of about Year 9, topics include number theory, sequences and series, inequalities and circle geometry.

PÓLYA

Price: AU\$42.00

Recommended for students of about Year 10, topics include polynomials, algebra, inequalities and Euclidean geometry.



SEEKING SOLUTIONS

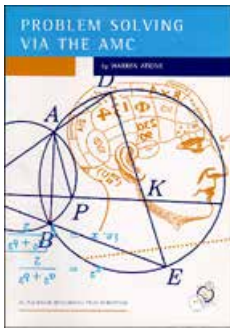
Price: AU\$42.00

e-version

SEEKING SOLUTIONS

JC BURNS

The author solves the problems of the 1988, 1989 and 1990 International Mathematical Olympiads. Unlike other books in which only complete solutions are given, John Burns describes the complete thought processes he went through when solving the problems from scratch. Written in an inimitable and sensitive style, this book is a must for a student planning on developing the ability to solve advanced mathematics problems.



PROBLEM SOLVING VIA THE AMC

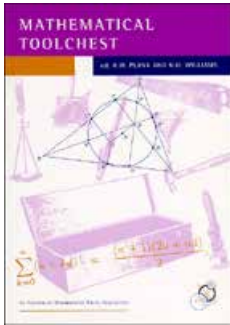
Price: AU\$42.00

e-version

PROBLEM SOLVING VIA THE AMC

WJ ATKINS

This book consists of a development of techniques for solving approximately 150 problems that have been set in the Australian Mathematics Competition. These problems have been selected from topics such as geometry, motion, Diophantine equations and counting techniques.



MATHEMATICAL TOOLCHEST

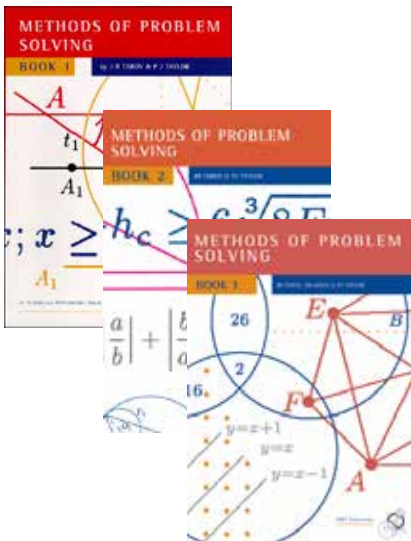
Price: AU\$42.00

e-version

MATHEMATICAL TOOLCHEST

AW PLANK & N WILLIAMS

This book is intended for talented or interested secondary school students who are keen to develop their mathematical knowledge and acquire new skills. Most of the topics are enrichment material outside the normal school syllabus and are accessible to enthusiastic Year 10 students.



METHODS OF PROBLEM SOLVING BOOK 1

Price: AU\$42.00

METHODS OF PROBLEM SOLVING BOOK 2

Price: AU\$42.00

METHODS OF PROBLEM SOLVING BOOK 3

Price: AU\$42.00

METHODS OF PROBLEM SOLVING BOOK 1, 2 and 3

Price: AU\$84.00

e-version

METHODS OF PROBLEM SOLVING BOOK 1

METHODS OF PROBLEM SOLVING BOOK 2

METHODS OF PROBLEM SOLVING BOOK 3

JB TABOV & PJ TAYLOR

These books introduce senior students aspiring to Olympiad competition to particular mathematical problem-solving techniques. The books contain formal treatments of methods which may be familiar or may introduce the student to new, sometimes powerful techniques.



TEACHING AND ASSESSING WORKING MATHEMATICALLY BOOK 1

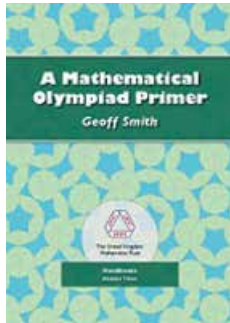
Price: AU\$42.00

TEACHING AND ASSESSING WORKING MATHEMATICALLY BOOK 2

Price: AU\$42.00

E STOYANOVA

These books present ready-to-use materials that challenge students' understanding of mathematics. In exercises and short assessments, working mathematically is linked with curriculum content and problem-solving strategies. The books contain complete solutions and are suitable for mathematically able students in Years 3 to 4 (Book 1) and Years 5 to 8 (Book 2).

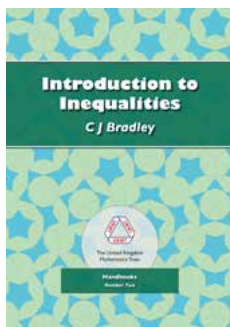


A MATHEMATICAL OLYMPIAD PRIMER

Price: AU\$42.00

G SMITH

This accessible text will enable enthusiastic students to enter the world of secondary school mathematics competitions with confidence. This is an ideal book for senior secondary students who aspire to advance from school mathematics to solving olympiad-style problems. The author is the leader of the British IMO team.

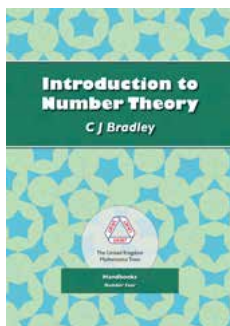


INTRODUCTION TO INEQUALITIES

Price: AU\$42.00

C J BRADLEY

The subject of inequalities provides a rich source of material for mathematics competitions. The difficulty in problem solving is usually that of knowing which sort of inequality to select and how to apply it. This accessible text aims to give the enthusiastic student plenty of tips on how to do this effectively. It is a thoroughly revised and extended edition of a book that was originally published as part of the composite volume *Introductions to Number Theory and Inequalities*.



INTRODUCTION TO NUMBER THEORY

Price: AU\$42.00

C J BRADLEY

The aim of this book is to enable talented students to tackle the sort of problems on number theory that are set in mathematics competitions. Topics include primes and divisibility, congruence arithmetic and the representation of real numbers by decimals. A useful summary of techniques and hints is included. This is a thoroughly revised and extended edition of a book that was originally published as part of the composite volume *Introductions to Number Theory and Inequalities*.

INTERNATIONAL MATHEMATICS



USSR MATHEMATICAL OLYMPIADS 1989–1992

Price: AU\$42.00

e-version

USSR MATHEMATICAL OLYMPIADS 1989–1992

AM SLINKO

Arkadii Slinko, now at the University of Auckland, was one of the leading figures of the USSR Mathematical Olympiad Committee during the last years before democratisation. This book brings together the problems and solutions of the last four years of the All-Union Mathematics Olympiads. Not only are the problems and solutions highly expository but the book is worth reading alone for the fascinating history of mathematics competitions to be found in the introduction.



POLISH & AUSTRIAN MATHEMATICAL OLYMPIADS 1981–1995

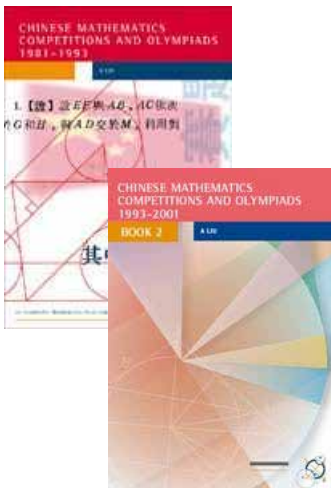
Price: AU\$42.00

e-version

POLISH & AUSTRIAN MATHEMATICAL OLYMPIADS 1981–1995

ME KUCZMA & E WINDISCHBACHER

Poland and Austria have some of the strongest traditions of mathematical olympiads in Europe even holding a joint olympiad of high quality. This book contains some of the best problems from the national olympiads. All problems have two or more independent solutions, indicating their richness as mathematical problems.



CHINESE MATHEMATICS COMPETITIONS & OLYMPIADS BOOK 1 1981–1993

Price: AU\$42.00

CHINESE MATHEMATICS COMPETITIONS & OLYMPIADS BOOK 2 1993–2001

Price: AU\$42.00

CHINESE MATHEMATICS COMPETITIONS & OLYMPIADS BOOK 1 and 2

Price: AU\$56.00

e-version

CHINESE MATHEMATICS COMPETITIONS & OLYMPIADS BOOK 1 1981–1993

CHINESE MATHEMATICS COMPETITIONS & OLYMPIADS BOOK 2 1993–2001

A LIU

These books contain the papers of two contests, the Chinese National High School Competition and the Chinese Mathematical Olympiad. The problems are meticulously constructed, many with distinctive flavour, and come in all levels of difficulty, from the relatively basic to the most challenging.



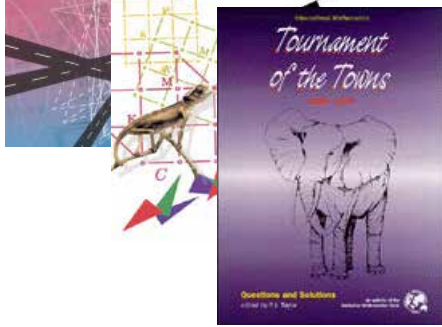
INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 1 1980–1984

Price: AU\$42.00



INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 2 1984–1989

Price: AU\$42.00



INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 3 1989–1993

Price: AU\$42.00



INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 4 1993–1997

Price: AU\$42.00



INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 5 1997–2002

Price: AU\$42.00



INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 6 2002–2007

Price: AU\$42.00

INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOKS 1– 6

Price: AU\$168.00

e-version

INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 1 1980–1984

INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 2 1984–1989

INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 3 1989–1993

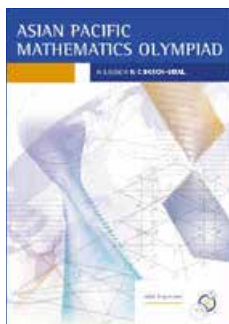
INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 4 1993–1997

INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 5 1997–2002

INTERNATIONAL MATHEMATICS –TOURNAMENT OF TOWNS BOOK 6 2002–2007

PJ TAYLOR & A STOROZHEV

The International Mathematics Tournament of Towns is a problem-solving competition in which teams from different cities are handicapped according to the population of the city. Ranking only behind the International Mathematical Olympiad, this competition has its origins in Eastern Europe (as did the Olympiad) but is now open to cities throughout the world. These books contain all the problems and solutions of the Tournaments.



ASIAN PACIFIC MATHEMATICS OLYMPIADS 1989–2000

Price: AU\$42.00

e-version

ASIAN PACIFIC MATHEMATICS OLYMPIADS 1989–2000

H LAUSCH & C BOSCH-GIRAL

With innovative regulations and procedures, the APMO has become a model for regional competitions around the world where costs and logistics are serious considerations. This book reports the first twelve years of this competition, including sections on its early history, problems, solutions and statistics.



101 PROBLEMS IN ALGEBRA

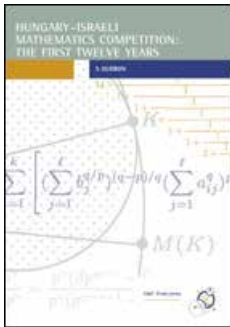
Price: AU\$42.00

e-version

101 PROBLEMS IN ALGEBRA

EDITED BY T ANDREESCU & Z FENG

This book contains one hundred and one highly rated problems used in training and testing the USA International Mathematical Olympiad (IMO) team. It gradually builds students' algebraic skills and techniques and aims to broaden students' views of mathematics and better prepare them for possible participation in mathematical competitions. It provides in-depth enrichment in important areas of algebra by reorganizing and enhancing students' problem-solving tactics, and stimulates interest for future study of mathematics.



HUNGARY–ISRAEL MATHEMATICS COMPETITION

Price: AU\$42.00

e-version

HUNGARY–ISRAEL MATHEMATICS COMPETITION

S GUERON

The Hungary Israel Mathematics Competition commenced in 1990 when diplomatic relations between the two countries were in their infancy. This 181-page book summarizes the first 12 years of the competition (1990 to 2001) and includes the problems and complete solutions. The book is directed at mathematics lovers, problem-solving enthusiasts and students who wish to improve their competition skills, especially IMO trainees. The book includes a glossary explaining the terms and theorems which are not standard that have been used in the book.



BULGARIAN MATHEMATICS COMPETITION 1992–2001

Price: AU\$42.00

e-version

BULGARIAN MATHEMATICS COMPETITION 1992–2001

BJ LAZAROV, JB TABOV, PJ TAYLOR & AM STOROZHEV

The Bulgarian Mathematics Competition has become one of the most difficult and interesting competitions in the world. It is unique in structure combining mathematics and informatics problems in a multi-choice format. This book covers the first ten years of the competition complete with answers and solutions. Students of average ability and with an interest in the subject should be able to access this book and find a challenge.



INTERNATIONAL MATHEMATICAL TALENT SEARCH PART 1

Price: AU\$42.00

INTERNATIONAL MATHEMATICAL TALENT SEARCH PART 2

Price: AU\$42.00

INTERNATIONAL MATHEMATICAL TALENT SEARCH PART 1 and 2

Price: AU\$56.00

e-version

INTERNATIONAL MATHEMATICAL TALENT SEARCH PART 1

INTERNATIONAL MATHEMATICAL TALENT SEARCH PART 2

G BERZSENYI

These books contain the problems and solutions of the International Mathematical Talent Search, plus an appendix of earlier problems and solutions of the USA Mathematical Talent Search. They contain many interesting and some unusual problems, many with detailed backgrounds and insights. They are aimed at advanced, senior students at Year 10 level and above.

INFORMATICS

(COMPUTER SCIENCE)



THE AUSTRALIAN INFORMATICS COMPETITION BOOK 1 2005-2010

Price: AU\$42.00

e-version

THE AUSTRALIAN INFORMATICS COMPETITION BOOK 1 2005-2010

D I CLARK

This book contains the questions, solutions and statistics from the 2005-2010 Australian Informatics Competition papers. The questions are grouped by category, and the book includes an explanation of each category and its relevance. Within a category, there may be several problem types, each of which also has an introduction, including practical applications and an outline of the method of solution.

PUZZLES & GAMES



CROSSNUMBER PUZZLES

Price: AU\$27.50

e-version

CROSSNUMBER PUZZLES

D I CLARK

Crossnumber puzzles are something akin to detective stories. Clues are given, but the implications of the clue needs to be worked out before it is applied in furthering the solution of the puzzle. A unique feature of this book is that each puzzle comes with a solution guide which gives one possible order for solving the puzzle. The solution guide shows which cell or cells to tackle next, without showing how to do it. Many of the clues in the puzzles have operations that go beyond simple addition, subtraction, multiplication, division and averaging, but they are still accessible to solvers who are unfamiliar with them. Full solutions to each puzzle are also included as well as a glossary of mathematical terms used in the book.

ELEMENTAURS: BOOT CAMP COMBO STARTER PACK

Price: AU\$16.95

ELEMENTAURS BOOT CAMP is an exciting new card game with adventures on a subatomic level which can lead to a greater understanding of basic high school chemistry. This first limited edition pack contains 36 Elementaur Cards, 2 Heat Cards, 6 Multiplier Cards, Rules Card, Instruction Sheet and Mendeleyev's Map. The ELEMENTAURS are creatures based on the first eighteen elements of the periodic table. ELEMENTAURS BOOT CAMP may be played at many different levels, depending on the age and ability of the players. From the simplest games through to the challenging COMBAT COMBOS there is something for everyone.



JOURNALS



MATHEMATICS COMPETITIONS

Price: AU\$70.00

Price includes one year subscription (2 issues) and postage (Australia only)

This bi-annual journal is published on behalf of the World Federation of National Mathematics Competitions. It contains articles of interest to academics and teachers around the world who run mathematics competitions. It includes articles on actual competitions, results of competitions, and mathematical and historical articles that may be of interest to those associated with competitions.

To subscribe contact: publications@amt.edu.au



PARABOLA INCORPORATING FUNCTION

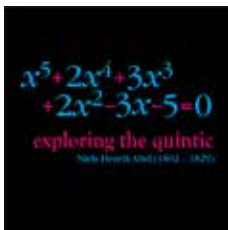
Price: AU\$30.00

Price includes one year subscription (3 issues) and postage (Australia only)

This tri-annual journal publishes articles on applied mathematics, mathematical modelling, statistics, pure mathematics and the history of mathematics, that can contribute to the teaching and learning of mathematics at the senior secondary school level. The journal's readership consists of mathematics students, teachers and researchers with interests in promoting excellence in senior secondary school mathematics education.

To subscribe contact: publications@amt.edu.au

T-SHIRTS



A new range of t-shirts has been designed and printed in Australia depicting four famous mathematical solutions. They are: Abel's proof that polynomials of order five or higher cannot be solved algebraically; the Fibonacci Sequence; Pythagoras Theorem relating side lengths for right-angled triangles; and the nine-point circle of von Feuerbach. The t-shirts are made of 100% cotton, are black with brightly coloured designs and come in four sizes.

Price: \$27.00 per T-shirt



ABEL



FIBONACCI



PYTHAGORAS



VON FEUERBACH