



## SOUTH AFRICAN MATHEMATIC FOUNDATION

### MATHEMATICS OLYMPIAD RESOURCE MATERIALS

The mathematics curriculum at South African schools provides valuable skills in dealing with numbers and studying geometrical objects using graphs, trigonometry, coordinate geometry and so on. However, for various reasons, teaching and assessment are inclined to treat many fundamental ideas superficially, so much so that non-routine problems are largely downplayed. The major function of mathematics is to make deductions and conclusions from pieces of information that are provided. How best to use the information in order to make conclusions, especially, a desired conclusion, requires a plan, a strategy and an approach. This is what **problem solving** is all about.

The South African Mathematics Foundation has several publications available to not only assist learners and teachers to prepare for the different rounds of the Olympiad, but also to incorporate problem solving in the classroom and to improve learners' higher order thinking skills - solving non-routine problems.

#### **Enjoying Mathematics 2: eBook (Questions and solutions 2001 to 2012 junior level)**

The questions and model answers of all three junior rounds from 2001 to 2012 have been categorised and compiled together to form this book. Learners and teachers can easily navigate from a question to the model answer. The publication is available as an eBook (on CD)

#### **A training manual for South African Mathematics Olympiads**

The manual is especially be useful for those who want to prepare for Round 2 and 3 of the South African Mathematics Olympiad. The book is divided in to three sections: Problems, Lessons and Solutions. An attempt is made in the lessons to cover the theory that is required for the solutions of most of the problems. The solutions are represented in such a way that most of the learners would understand them. The publication is available as an eBook (on CD) and hard copy.

#### **Enjoying Mathematics/Wiskunde Genot (Questions and solutions 1996 to 2001 junior level)**

#### **Love of Mathematics (Questions and solutions 1995 to 2005 senior level)**

The books represent an attempt to categorise the problems that have appeared in the Mathematics Olympiad into curriculum topics. Additionally, the style of the book makes it accessible both to teachers and learners. The idea is that when teachers teach certain concepts they have an immediate source of problems in that area. It is envisaged that this tool will help stimulate greater interest in problem solving.

#### **Annual Report booklets of the South African Mathematics Olympiad**

Working through old question papers is one of the best ways to prepare for the Olympiad. Our annual report booklets consist of each year's question papers with a complete set of solutions.

#### **1000 Mathematics Olympiad Problem**

Prof Pillay compiled A Training Manual for South African Mathematics Olympiads in 2014. This publication has been extensively revised and extended, the new title being 1000 Mathematical Olympiad Problems is the subsequent publication. This 637-page printed version is like its predecessor, is directed to all learners who participate in Mathematics Olympiads, but is nonetheless suitable for all learners who take mathematics at school. Learners and coaches/teachers are provided the wherewithal to select both topics and cognitive levels of their choice. In particular, teachers can teach a lesson which is in the curriculum and select problems for the book which are more challenging than the ones that routinely appear in school textbooks. In this way problem solving skills of all learners would be greatly enhanced. The large number of problems allow for a great deal of flexibility; the cognitive range of the problems (level 2 to level 10) makes them suitable for learners ranging

from Grades 7 to Grades 12. Higher level problems cater for Round 2 and Round 3 qualifiers, and even PAMO qualifiers.

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