

# Preface

This book has resulted from my extensive work with talented students in Macedonia, as well as my engagement in the preparation of Macedonian national teams for international competitions. The book is designed and intended for all students who wish to expand their knowledge related to the theory of inequalities and those fascinated by this field. The book could be of great benefit to all regular high school teachers and trainers involved in preparing students for national and international mathematical competitions as well. But first and foremost it is written for students—participants of all kinds of mathematical contests.

The material is written in such a way that it starts from elementary and basic inequalities through their application, up to mathematical inequalities requiring much more sophisticated knowledge. The book deals with almost all the important inequalities used as apparatus for proving more complicated inequalities, as well as several methods and techniques that are part of the apparatus for proving inequalities most commonly encountered in international mathematics competitions of higher rank. Most of the theorems and corollaries are proved, but some of them are not proved since they are easy and they are left to the reader, or they are too complicated for high school students.

As an integral part of the book, following the development of the theory in each section, solved examples have been included—a total of 175 in number—all intended for the student to acquire skills for practical application of previously adopted theory. Also should emphasize that as a final part of the book an extensive collection of 310 “high quality” solved problems has been included, in which various types of inequalities are developed. Some of them are mine, while the others represent inequalities assigned as tasks in national competitions and national olympiads as well as problems given in team selection tests for international competitions from different countries.

I have made every effort to acknowledge the authors of certain problems; therefore at the end of the book an index of the authors of some problems has been included, and I sincerely apologize to anyone who is missing from the list, since any omission is unintentional.

My great honour and duty is to express my deep gratitude to my colleagues Mirko Petrushevski and Đorđe Baralić for proofreading and checking the manuscript, so

that with their remarks and suggestions, the book is in its present form. Also I want to thank my wife Maja and my lovely son Gjorgji for all their love, encouragement and support during the writing of this book.

There are many great books about inequalities. But I truly hope and believe that this book will contribute to the development of our talented students—future national team members of our countries at international competitions in mathematics, as well as to upgrade their knowledge.

Despite my efforts there may remain some errors and mistakes for which I take full responsibility. There is always the possibility for improvement in the presentation of the material and removing flaws that surely exist. Therefore I should be grateful for any well-intentioned remarks and criticisms in order to improve this book.

Skopje

Zdravko Cvetkovski

Inequalities

Theorems, Techniques and Selected Problems

Cvetkovski, Z.

2012, X, 444 p., Softcover

ISBN: 978-3-642-23791-1