PROCEEDINGS
1994 Annual Convention
Mathematical Society
of the Philippines

MATIMYAS MATEMATIKA

Aim

Matimyás Matematika aims to provide mathematics teachers, students and aficionados a publication medium for expanding their professional awareness, enhancing their skills, and actualizing their mathematics interests. It is hoped that a natural consequence of the activities furthered by this journal would be to provide the mathematical community with social visibility and identity. Hopefully, too, the journal will contribute towards the definition of Philippine standards and serve the mathematical community in its aspiration toward greater heights.

Matimyás Matematika means an *intense feeling for mathematics,* a state of being which the journal would like to nurture.

PROCEEDINGS OF THE
1994 ANNUAL CONVENTION OF THE
MATHEMATICAL SOCIETY OF THE PHILIPPINES

28 - 29 MAY, 1994

UP CEBU COLLEGE, CEBU CITY

Co-Sponsor:
Cebu Mathematical Society

EDITORS:
Jose Maria P. Balmaceda
Agnes T. Paras
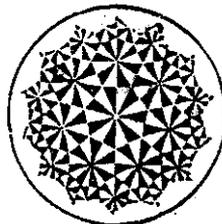
PREFACE

This issue of the *Matimyás Matematika* is devoted entirely to the Proceedings of the 1994 Annual Convention of the Mathematical Society of the Philippines (MSP). The publication of the Proceedings was supported by a financial grant from the Department of Science and Technology (DOST).

The 1994 MSP Annual Convention, co-sponsored by the Cebu Mathematical Society (CEMAS), was held on May 27 to 28, 1994 at the UP Cebu College, Cebu City. It was the first time that the annual meeting was held outside Metro Manila. The convention theme was: *Tertiary Mathematics Teachers in Focus.* The welcome address was delivered by Prof. Socorro Villalobos, Dean of the host institution and the keynote speaker was Engr. Lydia G. Tansinsin, Assistant Secretary of DOST. Prof. Jesusa T. Tangco, MSP Treasurer and Chair of the 1994 Convention Steering Committee and Dr. Milagros P. Navarro, MSP President, closed the two-day activity. The range and quality of the plenary talks and contributed lectures, most of which are included in this issue, serve as proof of the continuous growth and development of mathematics research and mathematics education in the country.

In behalf of the MSP and the CEMAS we acknowledge with gratitude the support of the following institutions in the annual convention:

- Department of Science and Technology

- National Research Council of the Philippines

- Metrobank Cebu

- UP Cebu College

In particular, we would like to again thank DOST for the financial grant for the publication of this Proceedings.

We hope that this issue would be a valuable addition to the reader's mathematical library and would serve to encourage everyone to pursue research in mathematics and mathematics education.

The Editors of the Proceedings

EXCERPTS FROM THE OPENING REMARKS

As we begin our two-day convention, whose focus is on the tertiary mathematics teacher, let me read to you words of a former student on the nature of our profession.

I am a graduate student of mathematics at the University of the Philippines. My friends often ask, "How can you bear going through further studies in this subject when we barely survived our elementary college algebra?" Needless to say, mathematics is indeed the most dreaded subject of most students. To them, this almost alien subject is the turf of weirdos and bespectacled nerds. My answer to their question shocks them more: *"I am in love with math."*

Contrary to what most students see, mathematics is not only the study of numbers, or a collection of techniques for solving number problems. It is a way of thinking that gives order to our observations of our world. It is a tool that we can use in tackling problems in other fields of study and professions. It is a universal form of communication; a language that cuts through nations. It is also an art, that involves imagination and creativity.

Teaching mathematics involves making students understand its very essence in order to dispel their misconceptions and fears that hinder their mathematical growth.

Mathematics essentially deals with generalizations and abstractions. Because all of us, in one way or another, engage in these, one should not fear mathematics. Everyday, we see and perceive things happening around us. One senses infinitely many different phenomena which constitute one's sensual experience. But we do not only sense, we also process. We sense in our thoughts to give them meaning. Why are we able to find relationships between two very different things, say the sun and the melting of ice? How are we able to perceive two different patches of reality and derive a common meaning? This is because every human being has the innate capacity to abstract from raw and naked perceptions and draw up generalizations on an essentially higher level of understanding. This innate capacity is what the mathematical mind is built upon. It is definitely nothing alien to us. Hence, nothing scary.

One of the most important challenges of teaching mathematics therefore, is to draw out and enhance the students' innate capacity and potential for mathematics. This requires not only a firm grasp of the subject on the part of the teacher, but also sensitivity to the students' needs, their mental and emotional blocks, and their over-all growth. Hence, a good teacher is also a friend.

Let us remember these simple and sincere thoughts as we strive to understand and perform our true role as teachers of mathematics. I am sure that this will be a fruitful gathering of friends. Welcome to the beautiful city of Cebu and good day.

Dean Socorro Villalobos, UP Cebu

EXCERPTS FROM THE KEYNOTE ADDRESS

I am honored to be here today on the occasion of your society's annual convention which, for the first time, is being held outside of Metro Manila. I hope that this is an indication that even our mathematicians are getting more involved with regional concerns; just like the DOST which has a program of bringing science and technology to the regions. Congratulations too for choosing a very appropriate theme for your convention.

The DOST recognizes the importance of the basic sciences and in particular, mathematics. It may be correct to state that mathematicians have an important role to play in national economic development. Thus, for many years now, the DOST has been very supportive of mathematicians and mathematics education.

As part of the science and technology manpower development program, the DOST has outlined the strategy for science and mathematics development from the elementary to the tertiary level. This strategy is geared towards upgrading the teaching of science and math in order to motivate and nurture the youths towards careers in science and technology. Networks of centers of academic excellence at all levels have been established to ensure the development of quality graduates in science, engineering and technology. From the feeder grade schools, to a network of secondary schools grouped around tertiary institutions which serve as the nodes and training centers for teachers and students, to the graduate schools.

Let me outline some of the other programs and projects instituted or supported by the DOST: (i) 3-semester Certificate/Diploma in teaching offered by the Science Education Institue (SEI); (ii) 2-summer Certificate program for secondary science and math teachers who are not majors and minors in science and math; (iii) the Engineering and Science Education Project (ESEP); (iv) Faculty Development Programs for teacher educators of the Regional Science Teaching Centers (RSTCs); (v) IBP Ladder type faculty development program; (vi) various scholarship programs for science and math education as well as teacher education ; (vii) career incentive programs for DOST-SEI scholar graduates of science and math; and (viii) programs for popularizing science and math among the youth, through mathematics competitions and training programs for the gifted like the Philippine Mathematical Olympiad and the Program for Excellence in Mathematics.

With these programs, I hope that you will find that the DOST takes care of your group and the groups that will come after you. I also hope that you will do your share of producing Filipinos proficient in mathematics which is essential to becoming highly productive, analytical and scientific in approaching problems as well as being flexible to changing market opportunities and adaptive to emerging technologies.

I wish you all a fruitful and succesful convention. Thank you and good day.

Asst. Sec. Lydia G. Tansinsin, DOST

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