



SEP 09 2010

DepEd MEMORANDUM
No. **387**, s. 2010

THE 13TH PHILIPPINE MATHEMATICAL OLYMPIAD (PMO)

To: Regional Directors
Schools Division/City Superintendents
Heads, Public and Private Secondary Schools

1. The Mathematical Society of the Philippines (MSP) in cooperation with the Department of Science and Technology-Science Education Institute (DOST-SEI) will hold the **13th Philippine Mathematical Olympiad (PMO)** this SY 2010-2011.
2. The PMO is the oldest and most prestigious mathematical competition among public and private secondary school students in the country. It aims to:
 - a. stimulate the improvement of mathematics education in the country by awakening greater interest in, and appreciation of mathematics;
 - b. identify and motivate the mathematically gifted;
 - c. identify potential participants to the International Mathematical Olympiad (IMO);
 - d. provide a vehicle for the professional growth of teachers; and
 - e. encourage involvement of public and private sectors in the concerted promotion and development of mathematics education.
3. The 13th PMO shall be carried out in three (3) stages:
 - a. **Qualifying Stage (October 23, 2010).** The elimination stage is a two-hour multiple choice examination consisting of thirty (30) questions. Fifteen (15) of these questions are worth two (2) points each, ten (10) are worth three (3) points each, and five (5) are worth six (6) points each. The competition will be between public and private high school students in each area (Luzon, Visayas, Mindanao and National Capital Region (NCR). There will be at least one (1) testing site in each of the regions;
 - b. **Area Stage (November 20, 2010).** The area stage is a three-hour written competition consisting of twenty (20) questions worth two (2) points each, and three (3) open-ended questions worth eight (8) points each. There will be testing center in each of the regions with qualifying participants; and
 - c. **National Stage (January 22, 2011).** The national stage is a written and oral competition between the top twenty participants (national ranking) of the area stage. This competition will be held in Metro Manila.
4. The PMO is open to all public and private secondary schools nationwide.



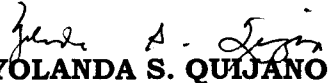
5. Expenses of public school students, including their teacher-coach, in the various venues for the qualifying stage, area stage, national stage and intensive mathematics summer training of winning PMO participants shall be charged to local/school funds, subject to the usual accounting and auditing rules and regulations. Private school participants may make their own arrangements with their school administration. Moreover, the policy on no disruption of classes shall be observed in the said activities.

6. Enclosure Nos. 1 and 2 contain the project proposal (including the general guidelines for the qualifying, area and national stages, awards and prizes for the area and national stages, and list of the regional coordinators) and the brochure for the 13th PMO, respectively.

7. The winners of the 13th PMO will automatically be qualified to join the mathematics training team for the 2011 International Mathematical Olympiad (IMO). The IMO is the largest and most prestigious international mathematics competition among secondary school students from all over the world. The representatives of the country to the IMO will be selected from a pool of high school students who will undergo intensive mathematics training during the summer of 2011. Incidentally, a new feature of the 13th PMO is the selection of top students among the first and second year in the national ranking after the area stage. These students will undergo a similar training/selection program for the planned 2011 Southeast Asian Junior Mathematics Olympiad.

8. For more inquiries and information, visit the following websites at <http://www.math.admu.edu.ph/pmo> and <http://www.mathsocietyphil.org> or e-mail at pmo@math.upd.edu.ph.

9. Immediate and wide dissemination of this Memorandum is desired.


YOLANDA S. QUIJANO
Undersecretary
Officer-in-Charge

Encls.:
As stated

Reference:
DepED Memorandum: No. 366, s. 2008

To be indicated in the Perpetual Index
under the following subjects:

CONTESTS
Learning Area, MATHEMATICS
STUDENTS

Project Proposal
The 13th Philippine Mathematical Olympiad (PMO)

I. Project Description and Objectives

The PMO is the oldest and most prestigious nationwide mathematics competition among high school students. The 13th PMO is designed to select the best students in mathematical problem-solving in the Philippines. This is to be done through three levels of competition beginning from the elimination stage, followed by the area stage (Luzon, Visayas, Mindanao and NCR) and culminating with the national stage.

The PMO aims to:

1. stimulate the improvement of mathematics education in the country by awakening greater interest in, and appreciation of, mathematics among students and teachers, and by gaining insights into the levels of mathematics learning;
2. identify and motivate the mathematically gifted;
3. identify potential Philippine representatives to the International Mathematical Olympiad;
4. provide a vehicle for the professional growth of teachers; and
5. encourage involvement of public and private sectors in the concerted promotion and development of mathematics education.

The 13th PMO shall be carried out in three stages:

1. **Qualifying Stage:** (23 October 2010) The elimination stage is a two hour multiple choice examination consisting of 30 questions: 15 of these questions are worth 2 points each, 10 are worth 3 points each and 5 are worth 6 points each. The competition will be between high school students in each area (Luzon, Visayas, Mindanao, NCR). There will be at least one testing site in each of the regions.
2. **Area Stage:** (20 November 2010) The area stage is a three hour written competition consisting of 20 questions worth 2 points each and 3 open ended questions worth 8 points each. There will be testing centers in each of the regions with qualifying participants.
3. **National Stage:** (22 January 2011) The national stage is a written and oral competition between the top twenty participants (national ranking) of the area stage. This competition will be held in Metro Manila.

Test development (preparation, analysis and evaluation of questions and problems to be used in the competition) begins in August 2010 and continues throughout the year.

The winners of the PMO will automatically be qualified to join in the mathematics training team for the 2011 International Mathematical Olympiad (IMO). The IMO is the largest and most prestigious international mathematics competition among secondary school students from all over the world. The representatives of the country to the IMO will be selected from a pool of high school students who will undergo intensive mathematics training during the summer of 2011.

II. Historical Background

The PMO was formerly part of the youth-oriented projects of the Department of Science and Technology - Science Education Institute (DOST-SEI) implemented by the Mathematical Society of the Philippines (MSP) in cooperation with the Department of Education (DepEd). In the earlier PMO, more than 50,000 students participated in the divisional stage. Held every two years, the competition started out as being mainly supported by DOST-SEI. Aside from funding the project, DOST-SEI provided technical assistance by assigning regular and contractual staff to help the MSP implement the project. Limited private assistance in the 6th and 7th PMO was obtained from the PCI Bank Group, which financed the cost of the medals, trophies and certificates. Due to financial constraints, the DOST-SEI was unable to finance the 9th PMO which was held (in a scaled down format) during the school year 2003-2004 in cooperation with the Mathematics Trainers' Guild (MTG).

Since 2007, the DOST-SEI has renewed its support for PMO. In the last three years, the 10th, 11th and 12th PMO were successfully held, with the support from C & E Publishing, Vibal Publishing, Business Plus Marketing (CASIO), Hong Kong Shanghai Banking Corporation, and Foundation for Upgrading the Standard of Education.

III. The Project Proponent

The proponent of the project is the Mathematical Society of the Philippines (MSP). The MSP is the largest professional organization of tertiary school mathematics teachers and researchers in the country, with business office at the Institute of Mathematics, University of the Philippines, Diliman, Quezon City. It is a non-stock, non-profit organization registered with the Securities and Exchange Commission. The MSP has implemented all previous stagings of the PMO. The 13th PMO will be implemented by the MSP in cooperation with DOST-SEI and DepEd.

IV. General Guidelines for the Qualifying and Area Stage

This competition shall be open to all qualified students from secondary school within the country. Each contestant will be charged a minimal amount of 50 pesos upon registration. The detailed guidelines are as follows:

- Any bona fide student of a secondary school (public or private) with a final grade of at least 88% (or its equivalent) in mathematics in the previous school year may be recommended by his/her school to participate.
- Every secondary school (public or private) may send at most 8 students to participate.
- The competition is open to all students of the four year levels (I, II, III IV).
- In the **qualifying stage**, each participant is given 130 minutes to answer a 30 item multiple choice exam. Fifteen of the 30 questions will be worth 2 points each, 10 will be worth three points each and 5 will be worth 6 points each.
- The top fifty participants per area (Luzon, Visayas, Mindanao, NCR) will then proceed to the **area stage** of the competition.
- In the area stage, each participant is given 360 minutes to answer twenty questions worth 2 points each and three open-ended questions.
- The participants with the three highest scores will be declared as the winners in their respective areas and will be awarded certificates.

V. General Guidelines for the National Stage

The national stage will be held in Metro Manila and the guidelines are as follows:

- The students with the top twenty scores in the area stage (national ranking) will qualify in the **national stage**.
- The national stage is divided into two phases: the written phase and the oral phase.
- In the written phase of the competition, the qualifiers will be given 3 hours to answer 5 questions.
- In the oral phase of the competition, the participants will have to answer 30 questions in public. Each question is allotted a specified time to answer.
- The participants will be ranked according to the following:
 - 70% - score from written phase
 - 30% - score from oral phase
- The top three participants together with their coaches shall receive awards.

VI. Awards and Prizes for the PMO

Area Stage

1 st Place	Student	Certificate
	Coach	Certificate
	School	Certificate
2 nd Place	Student	Certificate
	Coach	Certificate
	School	Certificate
3 rd Place	Student	Certificate
	Coach	Certificate
	School	Certificate

National Stage

1 st Place	Student	P 15000 and medal
	Coach	P 5000 and certificate
	School	Certificate and trophy
2 nd Place	Student	P 10000 and medal
	Coach	P 3000 and certificate
	School	Certificate and trophy
3 rd Place	Student	P 5000 and medal
	Coach	P 2000 and certificate
	School	Certificate and trophy

VII. Regional Coordinators

Region	Contact Person & Info	Affiliation
1	Ms. Divina Lara anividaral@yahoo.com	St. Louis University Baguio City
2	Mr. Crizaldy Binarao cpb_csu@yahoo.com	Cagayan State University Tuguegarao City
3	Dr. Jumar Valdez jumarvaldez@yahoo.com	Tarlac State University Tarlac City
4A	Dr. Editha Jose ecjose@uplb.edu.ph	UP - Los Baños Laguna
4B	Engr. Elucila Sespeñe proflucy_25@yahoo.com	Romblon State College Odiongán, Romblon

5	Ms. Cres Laguerta crnslgrt@yahoo.com	Ateneo de Naga University, Naga City
6	Mr. Lindley Kent Faina lkentf@yahoo.com	University of the Philippines in the Visayas, Miag-ao, Iloilo
7	Dr. Lorna Almocera lsalmocera@yahoo.com	UP Cebu College, Cebu City
8	Mr. Jonas Villas jonasvillas@yahoo.com	Leyte Normal University, Tacloban City
9	Dr. Rochelleo Mariano romeo_4747@yahoo.com	Ateneo de Zamboanga University, Zamboanga City
10 12 ARMM	Dr. Jocelyn Vilela jocelyn.vilela@g.msuiit.edu.ph	Mindanao State University- Iligan Institute of Technology, Iligan City
11	Dr. Eveyth Deligero evedeligero@yahoo.com	Ateneo de Davao University, Davao City
13	Dr. Thelma Montero-Galliguez dongthel@yahoo.com	Northern Mindanao State Institute of Science and Technology (NORMISIST), Butuan City
NCR	Mr. Karl Mina kmina@math.admu.edu.ph	Ateneo de Manila University, Quezon City

The 13th Philippine Mathematical Olympiad

What is PMO?

The Philippine Mathematical Olympiad is the oldest and most prestigious nationwide mathematics competition among high school students. The 13th PMO is designed to select the best high school students in mathematical problem-solving through a friendly competition.

Objectives

The PMO aims to:

- stimulate the improvement of mathematics education in the country by awakening greater interest in and appreciation of mathematics among students and teachers and gaining insights into the levels of mathematics learning;
- identify and motivate the mathematically gifted;
- identify potential participants to the International Mathematical Olympiad;
- provide a vehicle for the professional growth of teachers; and
- encourage involvement of public and private sectors in the concerted promotion and development of mathematics education.

General Guidelines and Scheme of Conduct

The 13th PMO is open to all high school students. It shall be carried out in three stages:

- Qualifying Stage (23 October 2010): The Qualifying Stage is a multiple choice exam which will be administered in each area (Luzon, Visayas, Mindanao, NCR). There will be one testing site for each region.
- Area Stage (20 November 2010): The Area Stage is a written competition among students in each area based on their performance in the Qualifying Stage.
- National Stage (22 January 2011): The National Stage is a written and oral competition among the winners of the Area Stage competition. This will be held in Metro Manila.

Test development (preparation, analysis and evaluation of questions and problems to be used in the competition) begins in August 2010 and continues throughout the year.

Participants' Qualifications

Qualifying Stage

- This competition shall be open to all high school students in the country. Each of the participating schools may send a maximum of 8 contestants.

- Any bona fide student of private or public high schools as specified above with a final grade of 88% (or its equivalent) in mathematics in the previous school year may apply.
- Participants will be asked to pay a minimal amount of fifty pesos (P=50.00) upon registration to the PMO coordinator of their region.

Area Stage

- The participants with the top fifty scores per area (Luzon, Visayas, Mindanao and NCR) will qualify for the area stage.

National Stage

- The participants from the area stage with the top twenty scores in national ranking will qualify for the national stage.

Format of the PMO Competition

Qualifying Stage

The qualifying stage competition is a thirty-point multiple-choice exam consisting of

- Fifteen questions worth 2 points each
- Ten questions worth 3 points each
- Five questions worth 6 points each

Area Stage

The area stage competition is in the form of a written exam consisting of

- 20 questions that will require answers only, and
- 3 open-ended questions that will require full solutions.

National Stage

This competition shall have two phases: the written phase and the oral phase.

- In the written phase of the competition, the contestants will be given 3 hours to answer 5 open-ended questions that require full solutions;
- In the oral phase of the competition, the participants will be read 30 questions, each of which will be answered within a specified time

selected so that each one is not related up to a second degree of consanguinity or affinity to any PMO participant. None of them will be teaching in any high school in the country. Each paper will be checked and double checked so as to ascertain the correctness of the scores.

Area Stage

The answer sheets will be checked by a board of judges which consists of college/university professors of mathematics who are not related up to a second degree of consanguinity or affinity to any PMO participant; and who are not teaching in high school.

Each correct answer in the first portion will merit 2 points. A complete and correct solution in the open-ended portion will merit 5 points. Partial points may be given in the open-ended portion as decided by the board of judges.

National Stage

Written Phase

The answer sheets will be checked by a board of judges which consists of five college/university professors of mathematics who are not related up to a second degree of consanguinity or affinity to any PMO participant; and who are not teaching in high school.

A complete and correct solution will merit 7 points. Partial points may be given as decided by the board.

Oral Phase

The board of judges shall consist of three members appointed by the PMO Committee.

The thirty questions will be divided as follows:

- 15 questions worth 2 points each
- 10 questions worth 3 points each
- 5 questions worth 6 points each

The participants will be ranked according to the following basis:

- 70% of the score in the written phase plus
- 30% of the score from oral phase

The top three participants and their coaches will be given trophies and cash awards.

Selection of Winners

Qualifying Stage

The answer sheets will be checked and scored by a team designated by the PMO Technical Committee. The checkers will be

The national finalists of the PMO will be qualified to join the International Mathematical Olympiad Summer Camp (IMOSC). The IMO is the largest and most prestigious annual international mathematics competition among high school students. The

representatives of the country to the IMO will be selected from the participants of the IMOSC.

A new feature of the 13th PMO is the selection of top students among the first and second year in the national ranking after the area stage. These students will undergo a training/selection program for the planned 2011 Southeast Asian Junior Mathematics Olympiad.

Awards and Prizes for the PMO

Area Stage	
1 st Place	Student Coach
2 nd Place	School Student Coach
3 rd Place	School Student Coach
National Stage	
1 st Place	Student Coach
2 nd Place	School Student Coach
3 rd Place	School Student Coach

Regional Testing Centers

Region 1/CAR	St. Louis University, Baguio City
Region 2	Cagayan State University, Tuguegarao City
Region 3	College of Business Administration, Tarlac State University, Tarlac City
Region 4A	University of the Philippines, Los Baños, Laguna
Region 4B	Romblon State College, Odlongan, Romblon
Region 5	Ateneo de Naga University, Naga City
Region 6	University of the Philippines Visayas, Iloilo City Campus
Region 7	AS Building, UP Cebu College, Cebu City
Region 8	Leyte Normal University, Tacloban City

Region 9

Carlos Dominguez Hall, Ateneo de Zamboanga University, Zamboanga City

Regions 10, 12

ARMM
CSM Annex Building
Mindanao State University – Iligan, Institute of Technology, Iligan City

Region 11

University of the Southeastern Philippines,
Obrero, Davao City

Region 13

NORMSIST Science and Technology,
Complex, Northern Mindanao State Institute of Science and Technology, Butuan City

NCR

SEC Building A, Ateneo de Manila University
Loyola Heights, Quezon City

Regional Coordinators

Region 1/CAR

Ms. Divina Lara
St. Louis University, Baguio City
(074) 443-2001 loc 334
Email: anivdaral@yahoo.com

Region 2

Mr. Crizaldy Binarao
Cagayan State University, Tuguegarao City
(078) 846-7196
Email: cpb_ssu@yahoo.com

Region 3

Dr. Junar Valdez
Tarlac State University, Tarlac City
(045) 982-5574, Fax: 982-0110
Email: junarvaldez@yahoo.com

Region 4A

Dr. Editha Jose
UP – Los Baños, Laguna
(049) 536-6610
Email: ecjose@uplb.edu.ph

Region 4B

Engr. Elucida Sespene
Romblon State University, Romblon
(042) 567-5588
Email: proflicy_25@yahoo.com

Region 5

Ms. Ches Laguerta
Ateneo de Naga University, Naga City
(054) 473-0756, 473-6447 loc 2126
Email: crsncdgr@yahoo.com

Region 6

Mr. Lindley Kent Faina
University of the Philippines Visayas,
Mag-aon, Iloilo
(033) 513-7020, (033) 513-8785
Email: kentlf@yahoo.com

Region 7

Dr. Loma Almocera
UP Cebu College, Cebu City
(032) 233-8203
Email: lsalmocera@yahoo.com

Region 8

Mr. Jonas Villas
Leyte Normal University, Tacloban City
(053) 321-5628, Fax: (053) 325-6122
Email: jonasvillas@yahoo.com

Region 9

Dr. Rochelleo Mariano
Ateneo de Zamboanga University,
Zamboanga City
(062) 991-0871 loc 2243 or 2245
Email: romeo_4747@yahoo.com

Regions 10, 12

ARMM
Dr. Jocelyn Vilela
MSU-Iligan Institute of Technology,
Iligan City
(063) 221-4050 loc 140, Fax: 221-4068
Email: jocelyn_vilela@msuilit.edu.ph

Region 11

Dr. Eveyth Deligero
University of Southeastern Philippines,
Davao City
(082) 227-8192 loc 300
Email: evedeliger@yahoo.com

Region 13

Dr. Theina Montero-Galliguez
Northern Mindanao State Institute of Science and Technology (NORMSIST),
Butuan City
(085) 342-0326, Fax: (085)-342-6251
Email: tgalliguez@yahoo.com

NCR

Mr. Karl Mina
Ateneo de Manila University, Quezon City
Telefax: (02) 426-6125
Email: kminna@math.admu.edu.ph

For more information, visit our website at
<http://www.math.admu.edu.ph/pmo>
For inquiries, email us at pmo@math.upd.edu.ph