



UNIVERSITY OF THE PHILIPPINES MATHEMATICS MAJORS' CIRCLE

Official Mechanics for MATHirang MATHibay 2024

I. Nature of the Contest

1. The contest will include high school algebra, geometry, trigonometry, number theory, probability, and combinatorics.
2. The contest will consist of three rounds: the Eliminations, the Oral Round, and the Finals.

II. Contestants

1. Contestants shall be bona fide Grade 7 to 12 students of a high school in the Philippines.
2. Each team is composed of exactly three members and at most one alternate.
3. A school may be represented by up to two teams.
4. The alternate may only substitute as a member of the team if one of its members fails to show up on the day of the contest.
5. The three persons who participate in the Elimination Round must be the same three persons to represent their team in the succeeding rounds if their team qualifies for any succeeding rounds.
6. However, if within the duration of the contest, a member of a team can no longer continue for some reason, the alternate may substitute for that member in the next rounds, upon the approval of the Academic Committee of the UPMMC.
7. Contestants are expected to observe proper conduct during the entire contest.

III. Eliminations

1. The elimination round is a 120-minute test, to be answered by team.
2. The test is composed of 20 questions.
 - (a) The questions are divided into four categories: Easy, Average, Difficult, and Very Difficult. Each category has 5 items, with the Easy, Average, Difficult, and Very Difficult category worth 2, 3, 5, and 7 points respectively. The test, therefore, is worth 85 points.

- (b) The Easy, Average, Difficult and Very Difficult questions are to be given out at the 0th, 12th, 36th, and 72nd minute of the Elimination Round respectively.
 - (c) Calculators are not allowed.
 - (d) Only answers in simplest form and with proper units shall be accepted.
 - (e) Scratch papers shall be provided for solutions.
3. The organizers shall **not** entertain any complaints during the test. Complaints from contestants will only be accepted in the first **10** minutes after time is up. Any information regarding the scores of contestants shall not be disclosed.
 4. The top 25 teams will proceed to the Oral Round. These teams will be announced shortly before the start of the Oral Round.
 5. Teams are tied whenever they obtain the same number of points. Such ties are broken in the following steps:
 - Step 1: We count the number of items answered correctly by each team from the Very Difficult category, and rank the teams accordingly.
 - Step 2: If ties persist from Step 1, we count the number of items answered correctly by each team from the Difficult category, and rank the teams accordingly.
 - Step 3: If ties persist from Step 2, we count the number of items answered correctly by each team from the Average category, and rank the teams accordingly.
 - Step 4: If ties persist from Step 3, we count the number of items answered correctly by each team from the Easy category, and rank the teams accordingly.
 - Step 5: If ties persist from Step 4, then all of the remaining tied teams are accepted into the Oral Round.
 6. The decision of the Academic Committee of the UPMMC is final and irrevocable.

IV. Oral Round

1. The oral round consists of 36 questions with varying time limits, not necessarily in increasing order.
 - (a) The questions are grouped into 12 tiers of 3 questions each: one Easy, one Average, and one Difficult question.
 - (b) In each tier, the order of giving the questions will be randomized.
 - (c) The tiers are approximately in increasing order of difficulty.
 - (d) The scores for the Oral Round are as follows:

**The number of teams allowed for the first three tiers depends on the Elimination Round.*
2. Each team shall be provided with a copy of each question, facing down. The team may start **reading and answering** as soon as the quizmaster says the **question number**. Any team caught reading or answering the question before the quizmaster does shall automatically be **disqualified** from answering the **question**.

Tier no.	Easy	Average	Difficult	Max. no. of teams
1	2	3	5	25*
2	2	3	5	25*
3	2	3	5	25*
4	2	3	5	22
5	3	5	8	20
6	3	5	8	18
7	3	5	8	16
8	3	5	8	14
9	5	8	13	12
10	5	8	13	10
11	5	8	13	8
12	5	8	13	6

3. Each team shall also be provided answer sheets where their final answers are to be written. Contestants must write their corresponding team numbers on the upper right hand corner of the answer sheets – failure to do so shall merit the team no point for that question even if the answer is correct.
4. Scratch papers shall be provided for solutions.
5. The quizmaster shall announce the question number and the time limit before reading the question twice. Time shall only start after the quizmaster says “Go.”
6. After the time limit has elapsed, all teams must submit their answer sheet immediately to the proctors. Late answer sheet submissions will not be accepted. The proctors shall then give the answer sheets to the judges and the judges shall announce the teams who got the correct answer.
7. Only final answers with correct units and in simplest form shall be considered.
8. Blank answer sheets shall be considered incorrect.
9. At the end of tier 3, only the top 22 teams will remain in the competition. At the end of tiers 4-12, the 2 lowest-ranking teams per tier are eliminated.
 - (a) If more than 22 teams are tied at the highest 22 ranks at the end of tier 3, or more than 2 teams are tied at the lowest 2 ranks at the end of tiers 4 to 12, then the tied teams are subjected to answer one math trivia question, followed by one math problem-solving question, worth 0.5 and 1 point respectively.
 - (b) If ties remain and the prescribed number of teams is still not achieved, then we shall proceed with traditional do-or-die questions until ties are broken and the prescribed number of teams is achieved. (For example, if at the end of Tier 4, Teams 1, 2, 3, and 4 are tied and only Team 1 manages to answer one question correctly, then Teams 2, 3, and 4 are to answer do-or-die questions until one team gets a question correctly, say Team 2. Teams 3 and 4 are therefore eliminated at the end of Tier 4.)
10. Contestants are requested to raise the flag provided on their respective tables to notify the judges of any protest. The protest should be forwarded to the judges before the quizmaster starts reading the next question.

- The decision of the board of judges is final and irrevocable.

V. Final Round

- The Final Round consists of 5 waves of 3 questions each.
- The three questions are given simultaneously, with a difficulty rating of ‘Easy’, ‘Average’, ‘Difficult’, relative to each other.
- The teams have a total of 5 minutes to answer all three questions in each wave.
- Each team shall be provided exactly **7** answer sheets in each wave. Each answer sheet corresponds to **one attempt for a single question**. Contestants must indicate on the answer sheet the difficulty rating of the question the answer is for – failure to do so shall merit the team no point for that question even if the answer is correct and shall be considered as an incorrect attempt for all three questions in that wave.
- An Easy question is worth a maximum of 7 points, an Average question is worth a maximum of 14 points, and a Difficult question is worth a maximum of 21 points. Teams are penalized for every wrong answer that they submit to the judges, as follows.

Question	Maximum no. of points	Penalty for every incorrect attempt
Easy	7	-1
Average	14	-2
Difficult	21	-3

(For example, if Team 1 has submitted 4 incorrect answers for the Easy question, 1 incorrect answer for the Difficult question, and gets the Easy question correctly on the 6th attempt, then Team 1 gets $7 - 4 \cdot 1 = 3$ points for that question.) The penalty stacks up with regard to the difficulty rating of the question attempted.

- Each team shall be provided with a copy of each question of the wave, facing down.
- The team may start solving as soon as the quizmaster starts reading the questions.
- The quizmaster shall only read the questions once. Time shall start once the quizmaster says “Go”, after which the teams may start submitting their answers.
- Teams shall submit their answer sheets to the proctors whenever within the 5-minute wave, which will then be submitted to the judges. The judge assigned to the team shall raise a colored flag if that team answered a question correctly, with the color of the flag dependent on the difficulty rating of the question:

Bronze – The team got the Easy question correctly.
 Silver – The team got the Average question correctly.
 Gold – The team got the Difficult question correctly.

Otherwise, the judge would just inform the team that they answered the question incorrectly. The board of judges shall announce the team number and the question/s that they got correctly at the end of each wave.

10. Only final answers with correct units and in simplest form shall be considered.
11. Scratch papers shall be provided for solutions.
12. Complaints will not be entertained during the course of any wave. The board of judges shall be open to receive complaints within one minute after a wave ends.
13. Ties for 1st, 2nd, and 3rd places are resolved by a tie-breaker wave where questions are also administered simultaneously.
 - (a) The tie-breaker wave shall be for 1 minute only.
 - (b) The tie-breaker wave consists of two questions: one Easy and one Average question, worth 0.25 and 0.5 points respectively.
 - (c) If ties persist at the end of the tie-breaker wave, then we shall proceed with traditional do-or-die questions until ties are broken.
14. The winners of the competition will be declared the title **PinakaMATHibay** while the second and third placers will be declared the titles **Mas MATHibay** and **MATHibay** respectively.
15. The decision of the board of judges is final and irrevocable.

VI. Special Cases

1. The UPMMC reserves the right to alter any rules covered by these mechanics without prior notice.