

# International Youth Math Challenge

Information Flyer

Edition of 2024

# Contents

<b>1</b>	<b>What is IYMC?</b>	<b>3</b>
1.1	Vision and Values . . . . .	3
1.2	What makes IYMC unique? . . . . .	3
1.3	How does IYMC compare to other competitions? . . . . .	4
<b>2</b>	<b>Who can participate?</b>	<b>6</b>
<b>3</b>	<b>Why participate?</b>	<b>7</b>
3.1	Prizes and Awards . . . . .	7
3.2	National Awards . . . . .	8
3.3	Awards for Ambassadors . . . . .	8
3.4	Awards for Schools . . . . .	8
3.5	Further Achievements . . . . .	9
<b>4</b>	<b>Process and Deadlines</b>	<b>10</b>
4.1	Qualification Round . . . . .	10
4.2	Pre-Final Round . . . . .	11
4.3	Final Round . . . . .	12
4.4	Timetable and Deadlines . . . . .	13
<b>5</b>	<b>Information for Teachers and Schools</b>	<b>14</b>
<b>6</b>	<b>Ambassador Program</b>	<b>15</b>
<b>7</b>	<b>Further Information</b>	<b>17</b>
7.1	Preparation and Previous Problems . . . . .	17
7.2	Login and Participant Account . . . . .	17
7.3	Certificate Verification Page . . . . .	17
7.4	Materials and Documents . . . . .	17
7.5	Newsletter . . . . .	17
7.6	Social Media . . . . .	17
7.7	Contact and Questions . . . . .	17
7.8	Organizers and Partners . . . . .	18

# 1 What is IYMC?

## 1.1 Vision and Values

Established in 2018, the International Youth Math Challenge is an educational mathematics competition designed to enable students from around the world to test their problem-solving skills and expand their knowledge through diverse math problems:

*”Mathematics is the language with which God wrote the universe.” — Galileo*

Mathematics lies at the heart of understanding our world, driving scientific achievements, technological advancements, and societal progress. It plays a crucial role in innovation and the prosperity of modern society. Recognizing the importance of math education for students of all ages, IYMC provides an educational program accessible to both students and teachers. This competition program offers young minds the opportunity to challenge their skills, learn more, be rewarded, and enjoy the fascinating world of mathematics beyond what the typical school curriculum has to offer.

## 1.2 What makes IYMC unique?

Although the competition format is integral to the IYMC, its primary goal is to encourage students to engage with mathematics and spark further interest in this and related scientific fields. As a result, IYMC serves as a learning experience, motivating students and allowing them to learn through experimental problem-solving formats. Noteworthy aspects of the IYMC program include the following:

- **Internationality:** The International Youth Math Challenge is a global competition from the first round onward. All participants solve the same problems in every round: This enables a fair evaluation and allows for international exchange among participants, which is usually only available to a few national representatives participating in international rounds.
- **Digital Accessibility:** The competition uses the possibilities of the modern internet to give all students the opportunity to participate regardless of nation, region or school affiliation. Although having a teacher’s support is beneficial, participating as an individual is always possible from anywhere around the world.
- **Experimental Formats:** Part of the IYMC experience are problem formats, which are uncommon for traditional competitions and aim for a distinctive learning experience. This includes problems that focus on the extension of school-typical formats through thought-provoking modifications or types of problems, which require a deeper dive into the research surrounding a topic.

- **Real-World Research:** Getting students in touch with real-world examples of mathematical research is an essential feature. The Pre-Final Round usually includes recently published research articles as part of the problem format, which is unique to IYMC: For many participants, this is the first time learning about actual research, and we offer additional support to expand this learning experience.
- **Adjusted Difficulty:** The problems are designed to appeal to both math enthusiasts as well as students who are just starting to find interest in mathematics beyond the school curriculum. To ensure that everyone has a positive experience, the level of difficulty is adjusted to include more approachable problems similar to those typically seen in school, as well as more challenging problems that incorporate unusual formats.
- **Online Tools for Teachers:** We provide teachers and schools with supplementary resources and support them throughout each edition. Teachers have access to a dedicated interface for managing the submissions of their students, tracking their results & certificates and supervising the Final Round exam.
- **Local Groups & Ambassadors:** As IYMC goes far beyond the annual competition, we strongly encourage and support the formation of local student groups related to mathematics & IYMC around the world, including meetups and other events. The IYMC Ambassador Program allows motivated students and mentors to encourage other youths to engage with mathematics and to establish a local community that brings together students over mathematics.
- **Supportive Alumni Network:** Since its first edition in 2018, thousands of students have participated in IYMC, creating a vast alumni network. This network encourages international exchange, including the distribution of various relevant opportunities like scholarships or sponsored events, to support each participant's academic career.

### 1.3 How does IYMC compare to other competitions?

Comparing the International Youth Math Challenge to other mathematics competitions can be misleading: IYMC does not intend to be an alternative to established competitions like the International Mathematical Olympiad (IMO) or its national variations and actively encourages students to take part in such opportunities.

Instead, IYMC serves as a supplementary program designed to engage a wide range of students, particularly those just beginning to develop an interest in mathematics and scientific subjects. It focuses on accessibility, making it a platform for students of all skill levels to explore and grow their mathematical fascination.

Although the annual competition is the central element, IYMC is not primarily structured around competitiveness but instead prioritizes the learning experience. Through experimental problem formats and real-world research topics, the competition introduces students to thought-provoking challenges that extend beyond standard school curricula and differ from traditional competition content. This approach appeals to students with varying levels of mathematical expertise, offering both approachable problems and more advanced tasks that inspire curiosity and creativity.

Moreover, IYMC empowers students by providing an independent platform that does not rely on their school or country. It connects participants through a global network, encouraging international collaboration and exchange. With a strong alumni community and supportive resources for teachers and local groups, IYMC goes beyond being just a competition.

## 2 Who can participate?

Current high school and university students from all grades and countries are eligible to participate. Participants must be 26 years old or younger to participate in the competition.

There are three age categories:

- **Junior:** 10th Grade and below (and  $< 16$  years of age)
- **Youth:** 11th to 13th Grade (and  $< 19$  years of age)
- **Senior:** 1st Year College/University and higher (or  $\geq 19$  years of age)

Students from all age categories will receive the same problems in all rounds. However, students in higher categories need to score more points to qualify for the next round.

*My age changes after the submission deadline. To which category do I belong?* Your age/grade on the day of the submission deadline of the Qualification Round (22 December 2024) determines your category.

*Do I have to be a student to participate?* Yes, you have to be a student in a high school or a university to participate. If you are currently between high school and university (i.e., gap year) and plan to start university any time soon, you are also eligible to participate.

To solve the problems, you should be open-minded and creative. As some problems may require you to read real-world research material, fluency in English is beneficial. You should have a working internet connection to submit your solution online.

### 3 Why participate?

Participating gives you the opportunity to apply your math skills to interesting problems and to learn beyond the school curriculum. Participants receive certificates, awards, cash prizes, global recognition and an international network.

#### 3.1 Prizes and Awards

All participants receive participation certificates to certify their efforts. In the Final Round, participants receive either a Bronze, Silver or Gold Honour, depending on their performance. The best students are awarded the 1st, 2nd and 3rd Prize as well as special awards for the best participant from each country:

<b>1. Prize, Senior</b>	175 USD Cash Prize + Special 1. Prize Certificate
<b>2. Prize, Senior</b>	125 USD Cash Prize + Special 2. Prize Certificate
<b>3. Prize, Senior</b>	75 USD Cash Prize + Special 3. Prize Certificate
<b>1. Prize, Youth</b>	150 USD Cash Prize + Special 1. Prize Certificate
<b>2. Prize, Youth</b>	100 USD Cash Prize + Special 2. Prize Certificate
<b>3. Prize, Youth</b>	50 USD Cash Prize + Special 3. Prize Certificate
<b>1. Prize, Junior</b>	125 USD Cash Prize + Special 1. Prize Certificate
<b>2. Prize, Junior</b>	75 USD Cash Prize + Special 2. Prize Certificate
<b>3. Prize, Junior</b>	25 USD Cash Prize + Special 3. Prize Certificate
<b>National Awards</b>	Special National Award Certificate
<b>All Finalists</b>	Bronze Honour, Silver Honour or Gold Honour
<b>All Participants</b>	Official Participation Certificate + Special Honour for Digital Submissions

*What is the "Special Honour for Digital Submissions"?:* All participants who write their solutions using a professional computer program (e.g., TeX) receive a special honorary note on their certificates.

### 3.2 National Awards

Since the International Youth Math Challenge is a global competition with participants from various countries, we honour the best students from each participating nation with a special national award certificate. A list of the top national scorers will be published online.

### 3.3 Awards for Ambassadors

Each year, special awards are given to the most active and responsible ambassadors to honour their excellent performance. The IYMC coordinators use the information about the number of participants that you encouraged, as well as your documented activities & pictures, to honour the following awards:

- **1x IYMC Ambassador Award for Most Overall Participants:** The ambassador who has encouraged the most students to participate in IYMC will receive this award.
- **1x IYMC Ambassador Award for Most Finalists:** The ambassador who was able to support most students in progressing into the final round will receive this award.
- **IYMC Ambassador Award for Excellent Encouragement:** Ambassadors who are extraordinarily active in their local community, have documented numerous activities to inspire students in mathematics, or have supported several students to join IYMC receive this award.

### 3.4 Awards for Schools

We understand the crucial role of teachers and schools in mathematical education. Because of that, we award three types of school awards to honour the efforts of the teachers and the school (the awards are not connected to cash prizes):

- **1x IYMC School Award for Most Participants:** This award receives the school with the most overall participants in the Qualification Round.
- **1x IYMC School Award for Most Finalists:** This award receives the school with the most overall participants in the Final Round.



- **IYMC School Award for Excellence:** Schools with many outstanding students who have achieved high results throughout the overall competition or have shown particular support for their students while participating receive this award.

*How do schools participate to win the awards?:* Schools participate automatically if a student registers with the school's name. Please make sure that all of your students write the school name correctly and in the same way. Also, we recommend that the school's teachers register at IYMC.

### 3.5 Further Achievements

Participating in international competitions contributes to your personal development and is an excellent achievement for your academic career. Participating in IYMC is a unique experience that will expand your knowledge, get you closer to real-world mathematics and connect you with like-minded students.

**Global Network:** Winners and former participants of IYMC become part of the international IYMC network: This network consists of outstanding and talented students from all around the world! It enables you to get in touch with inspiring youths and to connect with students worldwide. If you have successfully participated, you will receive all information about our alumni network from us.

**Opportunities (e.g., Scholarships):** Our team is working constantly to provide former participants with information about international and regional opportunities, including scholarships, sponsored events and other competitions. We will send the relevant information to qualified participants directly and publish them via the alumni platform.

**Regional Meetups:** The IYMC team and local ambassadors frequently organise meetups in several parts of the world. All participants are welcome to attend and get in touch with other math enthusiasts.

*Do I receive a hard copy of the certificates?:* We will send hard copies of the certificates to all 1st, 2nd and 3rd Prize winners. All other participants, including the finalists, will receive a soft copy version of the certificates, which also includes a permanent verification-ID ([iymc.info/verify](http://iymc.info/verify)).

## 4 Process and Deadlines

The IYMC competition consists of three stages: Qualification Round, Pre-Final Round, and Final Round. Each round has its unique features to enable a challenging and exciting experience!

### 4.1 Qualification Round

The Qualification Round is the first stage and consists of five math problems. The problems encompass a wide range of topics, varying in difficulty and discipline. They range from geometry to number theory to make sure that everyone finds interesting problems to work out!

The problems will test your math and problem-solving skills. All participants of the Qualification Round will receive participation certificates. You need to score at least 15/17/20 points (Junior/Youth/Senior) to qualify for the Pre-Final Round.

The submission deadline is <b>Sunday, 22 December 2024 23:59 UTC+0</b> .
--

### Submission Information

In order to avoid connection issues, upload errors, and other problems, please submit your solution *before* the official submission deadline (22 December 2024). The solution file may be typed digitally (recommended; e.g., TeX), or it may be a clear picture of your handwritten notes. In case you have multiple pictures, you may use an online tool to combine the pictures into a single PDF file. Make sure that you write your name, school, city and date of birth correctly! The details will be used for all certificates. There are no fees or registration costs to participate in the Qualification Round.

The results of the Qualification Round will be announced on <b>30 December 2024</b> .
---

### Announcement of Results

You will receive an email about the results; however, you can also check your participant account for your results, performance report, and certificates online. Please log into your participant account so as not to miss any critical information: [www.iymc.info/login](http://www.iymc.info/login).

## 4.2 Pre-Final Round

Participants who solved the Qualification Round successfully are qualified to participate in the Pre-Final Round. The problems will be more challenging but also more engaging!

### Problems and Points

The Pre-Final Round consists of six problems that vary in difficulty, points, and subject. All topics from geometry to number theory are included, as well as real-world research material. There are three types of problems that give you four, six, and eight points:

- **2x Basic Problems (4 Points):** The Pre-Final Round includes two basic problems (lower difficulty).
- **2x Advanced Problems (6 Points):** The pre-final round includes two advanced problems (higher difficulty).
- **2x Special-Creativity Problems (8 Points):** The Pre-Final Round includes two special-creativity problems whose experimental format varies each year. Usually, one of them presents a real-world example of mathematical research or requires particular originality.

It is possible to reach up to 36 points in total. Participants have to score at least 16/20/24 points (Junior/Youth/Senior) to qualify for the Final Round.

### Process and Submission

All participants who are qualified and registered for the Pre-Final Round will receive the problems via email or via their participant account on Thursday, 23 January 2025. From that day on, you have four days until Sunday, 26 January 2025 to solve as many problems as possible.

You can submit your solution online via a dedicated submission form. You can choose if you would like to submit the solution as a handwritten version or as a digitally typed document. We recommend writing the solution in the blank space on the problem sheets of the Pre-Final Round. Please highlight your final solutions.

### Registration and Costs

If you succeed in the Qualification Round, you can choose to participate in the Pre-Final Round by registering from your participant account.

The registration deadline for the Pre-Final round is **Tuesday, 21 January 2025**.

**This educational opportunity comes with diverse costs, including those for human resources, technical infrastructure, materials and more. While our sponsors cover some of these expenses, we need to ask participants to cover this year's Pre-Final Round registration costs of 11 EUR to make IYMC on a global level possible.**

The registration costs are necessary to provide the resources required to run a competition at this scale, including evaluation, in particular, for the comprehensive Pre-Final Round. There are no other costs involved. The registration costs can be covered with any common payment method available and we will inform all qualified participants about further details. You can find detailed information about the registration costs here: <https://iymc.info/costs>

*Can I only participate in the Qualification Round and not in the Pre-Final Round?:* Sure, you can participate in the Qualification Round and receive your participation certificate and not register for the Pre-Final Round.

The results of the Pre-Final Round will be announced on **Tuesday, 4 February 2025**.

### 4.3 Final Round

Participants who have solved the Pre-Final Round successfully are qualified to participate in the Final Round: a multiple-choice online exam with 20 questions.

#### Exam and Points

The Final Round consists of a single exam with 20 multiple-choice questions involving mathematical calculations, logic and knowledge, in particular related to the Qualification and Pre-Final Round. Finalists have 60 seconds for each question. There are four possible answers to every question (only one is correct). A correct answer equals one point. There are no negative points for incorrect answers. The awards and prizes are given to the finalists with the most points in the Final Round. If multiple participants have the same score, the points from the Pre-Final Round (and Qualification Round) are used to determine the final winners.

All final exams take place on **Tuesday, 18 February 2025**.

## Teacher Registration

Finalists take the exam via a dedicated online exam portal ([iymc.info/exam](http://iymc.info/exam)). The online exam is conducted in the participant's school, where a teacher supervises each finalist. All finalists have to select a teacher who agrees to supervise the exam. We will send all required information to the selected teacher who has time to conduct the 20-minute exam on Tuesday, 18 February 2025. The teacher has to make sure that the finalist does not cheat and does not open any other browser tabs, websites, programs, or computer windows during the exam. Participants can also record their exams with a video camera or smartphone and upload the video. In this case, no teacher is needed.

The results of the Final Round will be announced on **Monday, 24 February 2025**.

## 4.4 Timetable and Deadlines

Below is a table listing all relevant dates and deadlines. Please note that changes may occur in some cases. The time applicable to all dates in the timetable below is 23:59 UTC+0.

### *Qualification Round:*

**Sunday, 22 December 2024** Submission Deadline (Qualification Round)

**Monday, 30 December 2024** Announcement of Results (Qualification Round)

### *Pre-Final Round:*

**Tuesday, 21 January 2025** Registration Deadline (Pre-Final Round)

**Thursday, 23 January 2025** Release of Problems (Pre-Final Round)

**Sunday, 26 January 2025** Submission Deadline (Pre-Final Round)

**Tuesday, 4 February 2025** Announcement of Results (Pre-Final Round)

### *Final Round:*

**Tuesday, 18 February 2025** Day of the Final Round Exam

**Monday, 24 February 2025** Announcement of Results (Final Round)

## 5 Information for Teachers and Schools

Teachers, schools, and parents are invited to share IYMC as an extracurricular learning opportunity for students with an interest in mathematics. We provide unique tools for teachers to use this competition in class and to support their students.

The IYMC is a great way to sharpen the minds of your students, to give them motivation and to challenge them with creative maths problems. The problems can be used as homework or project work: The competition includes various topics that range from geometry to number theory. Furthermore, teachers and schools may use the IYMC challenge for after-school classes or workshops. The problems will inspire students to get engaged with mathematics and will provide a unique opportunity for talented students to test their math skills and expand their knowledge beyond the school curriculum.

### Special School Awards

Schools and teachers with numerous participants and who achieved an excellent performance throughout the competition receive special awards. The awards are not connected to a cash prize but are supposed to honour the efforts of the schools and the commitment of the individual teachers (see page 8).

### Teacher Registration and Interface

All teachers can register to access the special IYMC teacher page. This tool enables you to: (i) view the student's results and documents; (ii) cover the pre-final registration costs for a group of students at once; and (iii) to supervise the final round exam. You can register as a teacher on this page: <https://iymc.info/teacher-registration>

If you are interested in implementing an IYMC group in your school or using the IYMC problems for your curriculum or as project work, do not hesitate to get in touch ([submission@iymc.info](mailto:submission@iymc.info)). You can also find additional materials, flyers and posters on our official website.

## 6 Ambassador Program

As IYMC is an international competition with participants from around the world, it is crucial to have official ambassadors in various schools, cities, and countries. Ambassadors represent IYMC, coordinate local student groups, organise activities and promote IYMC in their community. Being an IYMC ambassador is excellent for your CV, gives you the unique opportunity to prove your skills as a coordinator and allows you to encourage students to engage with math.

### Requirements

You have to be at least 14 years old, interested in mathematics, and willing to spend time encouraging students to engage with mathematics and IYMC. Please note that a certificate will be issued to active ambassadors only (i.e., at least one Pre-Final Round participant is linked to an ambassador).

### Responsibilities and Benefits

You have a variety of responsibilities, such as

- sparking other student's interest in mathematics,
- building a local community and organizing events & meetups,
- assisting students with participating in IYMC and
- reaching out to schools, teachers and institutes.

Besides collecting career experience as part of our global network, active ambassadors receive an official certificate and information about study opportunities (e.g., scholarships). You can find a document about possible ambassador activities here: <https://iymc.info/amblast>

Additionally, all ambassadors receive a personal ambassador page and an official IYMC email address. Accepted ambassadors can organize their participants, manage activities, upload pictures, and more online: <https://iymc.info/ambassadors>

### Awards for Ambassadors

Special awards are given each year to the most active ambassadors to honour their excellent and responsible performance. This includes awards for encouraging many participants as well as for coordinating extensive activities. However, your main goal should always be to inspire youths for mathematics! You can find more information on page 8.

## **Application Process**

To apply, please fill out the ambassador application form, including a letter of motivation, your CV and a short video. Upon receiving your application, the Public Relations Manager of 2024 and other coordinators will review your application and contact you typically within two weeks.

The application form is available on this page: <https://iymc.info/application>



## 7 Further Information

### 7.1 Preparation and Previous Problems

Preparation recommendations and all problems of previous editions of the International Youth Math Challenge are available online: [www.iymc.info/training](http://www.iymc.info/training)

### 7.2 Login and Participant Account

We provide all participants with a tool to check your submissions, your results and your certificates in all rounds. The online feature is available via this link: [www.iymc.info/login](http://www.iymc.info/login)

### 7.3 Certificate Verification Page

All certificates and documents issued by IYMC contain a verification-ID. In this way, other people can check the validity of the certificates issued to you: [www.iymc.info/verify](http://www.iymc.info/verify)

### 7.4 Materials and Documents

On our official website, you find a list of materials with additional information you can use to promote IYMC. The materials include:

- Information Flyers
- Official Posters of IYMC
- Presentations about IYMC

### 7.5 Newsletter

The IYMC Newsletters and alerts will inform you about upcoming challenges as well as general information and activities. You can subscribe to the newsletter on the IYMC website.

### 7.6 Social Media

To stay tuned and receive all recent posts and updates from IYMC, make sure to visit our social media pages. Also, we encourage you to share our posts on social media to inform other students about this opportunity: [www.facebook.com/theIYMC](http://www.facebook.com/theIYMC), [www.instagram.com/iymc.info](http://www.instagram.com/iymc.info)

### 7.7 Contact and Questions

If you have questions, comments, issues or feedback regarding IYMC, feel free to contact the IYMC ambassadors or send us a message directly via email. Our team will get back to you as soon as possible: [submission@iymc.info](mailto:submission@iymc.info)

## 7.8 Organizers and Partners

The International Youth Math Challenge is an independent youth competition and not affiliated with any organization. The main coordinators of the IYMC 2024 edition are:

**International Coordinator**

Fabian Schneider

schneider@iymc.info

**Public Relations Manager**

Rami Aly

rami.aly@iymc.info

Website: [www.iymc.info](http://www.iymc.info)Email: [submission@iymc.info](mailto:submission@iymc.info)

Facebook: @theIYMC

Instagram: @iymc.info

We thank all other involved people and coordinators that do their best to make this competition possible for students from all countries, as well as our partners and sponsors:



International Astronomy and Astrophysics Competition

Spokesperson: Stefan Amberg

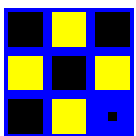
amberg(at)iaac.space



Youth Opportunities Ltd.

Spokesperson: Maliha Iqbal

maliah(at)youthop.com



The Beauty of Math Initiative

Spokesperson: Simon Pateck

info(at)beautyofmath.org



Youthhub Africa Platform

Spokesperson: Malti Danjuma

[www.youthhubafrica.org](http://www.youthhubafrica.org)

→ All partners available online: [iymc.info/partners](http://iymc.info/partners)