

28<sup>th</sup> HMMT February  
**Mathematics Tournament**  
at **Massachusetts Institute of**  
**Technology**

**HMMT**

---

HMMT February Tournament  
Saturday, February 15, 2025



February 15, 2025

Hello HMMT February 2025 Contestants!

THE HMMT organizing team is delighted to have you join us here in Cambridge! We have all been committed to building this February's competition into an experience that we hope you will recall fondly for many years to come. From crafting the most intriguing of problems to setting up the spaces for optimal test taking, our team of over 100 MIT and Harvard students presents to you the 28th season of HMMT February.

These couple of days every year are truly special for us, and we hope that you all will find the same statement holds for you. We are honored by how eager many in the high school math community are to take part in HMMT. As we celebrate this wonderful discipline, never forget that even more importantly, we gather here to showcase and laud the achievements of all you fantastic mathletes.

Those of you who are seasoned veterans of HMMT may recall that, for years, our tournament directors have equated the importance of the human element of HMMT to that of math. This year, we take this statement further; the human element of HMMT is crucial to our competition. For all its purity and intrinsic beauty awaiting discovery by bright minds such as your own, math cannot hold the sole, dominant place in our minds and being. Take the time to speak to the other incredibly bright students around you, but more importantly, listen. We hope that you will find unparalleled appreciation and wonder by familiarizing yourself with your exceptional peers.

To the coaches, parents, and chaperones: we have seen how much you care about granting your students opportunities to pursue their interests in math, and we cannot express enough how appreciative we are for your support of the next generation of mathletes. Through the toils of registration, the anxiety of the lottery, and the logistical taxes of organizing the trip here, your commitment shines. While today is primarily about the students, we hope that you will enjoy our student panels and cheer on your students during the guts round.

As you navigate MIT's campus, we hope you will find the maps in this brochure helpful. Please check your team's room assignments carefully and notify any HMMT member (clad in blue volunteer shirts or black officer jackets) if you require any assistance. We understand that the campus can be hard to navigate at first, and we're here to help!

Once again, we are excited to have you join us for today's tournament, and we wish you all the best in the competition!

Regards,

Jerry Liang

Sophie Wu

TOURNAMENT DIRECTORS

Derek Liu

Albert Wang

Isabella Zhu

FEBRUARY PROBLEM CZARS

Vivian Tan

HISTORIAN

# Student Schedule

## Friday, February 14, 2025 (Harvard)

5:45PM — 7:00PM	Early Registration	SC Arcades
5:45PM — 6:45PM	Pizza and Cookies	SC Arcades
6:30PM — 6:45PM	Opening Presentation	SC B
7:00PM — 8:00PM	Sponsor Events	Varies
8:10PM — 9:10PM	Student Events	Varies

## Saturday, February 15, 2025 (MIT)

7:00AM — 8:00AM	Registration	Lobby 10
7:30AM — 8:30AM	Competitor Breakfast	Lobby 13
8:15AM — 8:45AM	Individual Competitor Meeting	10-250
9:00AM — 10:15AM	Team Round	Assigned Locations
10:30AM — 11:30AM	Algebra and Number Theory Round	Assigned Locations
11:40AM — 12:40PM	Geometry Round	Assigned Locations
12:50PM — 1:50PM	Combinatorics Round	Assigned Locations
1:50PM — 3:00PM	Lunch	W20 Lobdell, W20 La Sala
3:00PM — 4:45PM	Guts Round	Assigned Locations
5:00PM — 5:20PM	A cappella Performance	Kresge Auditorium
5:30PM — 6:00PM	Integration Bee Finals	Kresge Auditorium
6:00PM — 6:50PM	Awards Ceremony	Kresge Auditorium

## Sunday, February 16, 2025 (MIT)

8:00AM — 8:50AM	Breakfast	Stata Center (Building 32)
9:00AM — 9:50AM	Class Block 1	Varies
10:00AM — 10:50AM	Class Block 2	Varies
11:00AM — 11:50AM	Keynote Talk	32-123
12:00PM — 12:50PM	Lunch	Stata Center (Building 32)
1:00PM — 1:50PM	Class Block 3	Varies
2:00PM — 2:50PM	Class Block 4	Varies

# Coach, Proctor, and Parent Schedule

## Friday, February 14, 2025 (Harvard)

5:45PM — 7:00PM	Early Registration	SC Arcades
5:45PM — 6:45PM	Pizza and Cookies (for competitors)	SC Arcades
6:30PM — 6:45PM	Opening Presentation	SC B
7:00PM — 8:00PM	Sponsor Events	Varies
8:10PM — 9:10PM	Student Events	Varies

## Saturday, February 15, 2025 (MIT)

7:00AM — 8:00AM	Registration	Lobby 10
7:30AM — 8:10AM	Proctor Breakfast	6-120
8:10AM — 8:40AM	Proctor Meeting	6-120
9:00AM — 10:15AM	Team Round	Assigned Locations
10:45AM — 11:45AM	Parent/Coach Talk	45-230
1:50PM — 3:00PM	Lunch	W20 Lobdell, W20 La Sala
3:00PM — 4:45PM	Guts Round Viewing	W20 Lobdell
5:00PM — 5:20PM	A cappella Performance	Kresge Auditorium
5:30PM — 6:00PM	Integration Bee Finals	Kresge Auditorium
6:00PM — 6:50PM	Awards Ceremony	Kresge Auditorium

## Sunday, February 16, 2025 (MIT)

8:00AM — 8:50AM	Breakfast	Stata Center (Building 32)
9:00AM — 9:50AM	Class Block 1	Varies
10:00AM — 10:50AM	Class Block 2	Varies
11:00AM — 11:50AM	Keynote Talk	32-123
12:00PM — 12:50PM	Lunch	Stata Center (Building 32)
1:00PM — 1:50PM	Class Block 3	Varies
2:00PM — 2:50PM	Class Block 4	Varies

# Test Information

## Rules

You may not use books, notes, calculators, pocket organizers, slide-rules, abaci, or any other computational aids. Similarly, you may not use graph paper, rulers, protractors, compasses, architectural tools, or any other drawing aids. Translators are also prohibited.

## Guidelines for Acceptable Answers

- Answers must be simplified and exact unless otherwise specified.
- Rational numbers should be given in lowest terms.
- An  $n^{\text{th}}$  root should be simplified so that the radicand contains no fractions and is not divisible by the  $n^{\text{th}}$  power of any prime.
- Denominators do not need to be rationalized.
- Correct mathematical notation must be used.
- No partial credit will be given unless otherwise specified.

## Protests

If a student believes that an answer given on the answer key is incorrect, they must submit an appeal on [link.hmmt.org/protest](http://link.hmmt.org/protest). The deadline to do so will be announced on the day of the contest.

**Decisions of the February HMMT coordinators are final.**

# Rules of Conduct and Expectations for HMMT Attendees

HMMT is organized by undergraduate students at Harvard and MIT under the eponymous student organization at MIT and the Harvard Undergraduate Mathematics Association (HUMA). While we receive support from both universities, HMMT is a distinct entity. When you attend our competition, you are a HMMT-sponsored visitor to the campuses of Harvard and MIT. As such, we mandate that HMMT attendees abide by the following rules of conduct. We strongly urge the coach of each organization to carefully read this document and ensure that students are also familiar with it.

## Conduct

While you are an attendee of HMMT, you must abide by these rules:

- Be respectful of people. Rude behavior, inappropriate language, and threats against another person of any nature, whether verbal or physical, executed or suggested, will not be tolerated.
- Dishonesty accompanied by ill intent (including, but not limited to, lying, cheating, doping, and scamming) is forbidden.
- Be respectful of the spaces. While attending the events of HMMT, you are a visitor to the private property of Harvard or MIT. Do not deface the rooms.
- Do NOT eat or drink in classrooms unless designated for eating. Do not dispose of food scraps in classroom waste containers.
- Do not transfer furniture between rooms. If you require more furniture, alert a HMMT officer, and arrangements will be made for you.
- Do not linger around doors and stairs or obstruct hallways; please wait in open locations or your assigned rooms.
- Be responsible for your organization's members. Penalties may be leveraged against an entire organization based on a single person's actions.

## Consequences

The HMMT Tournament Directors reserve the right to disqualify any team at any time for any reason. In severe situations of misconduct, you may be escorted off the premises. Your test results will be nullified, and you will be disqualified. Permanent bans will be imposed upon organizations that severely infringe upon the code of conduct.

# Local Information

## Food

- **Clover Food Lab** (\$\$)  
*Daily-changing menu featuring seasonal ingredients.* 5 Cambridge Center, Cambridge, MA 02139
- **Chipotle** (\$)  
*Build-your-own Mexican fare.* 255 Main St, Cambridge, MA 02142
- **Saloniki Greek** (\$)  
*Customizable Greek plates, pitas, and more.* 181 Massachusetts Ave, Cambridge, MA 02139
- **Flour** (\$\$)  
*Branch of a local chain of pastry shops specializing in French treats.* 190 Massachusetts Ave, Cambridge, MA 02139
- **Vester** (\$\$)  
*Modern cafe whipping up seasonal sandwiches and wraps.* 73 Ames St, Cambridge, MA 02142

## Emergency

In the event of fire or life-threatening emergency, call (617) 253-1212, not 911. This number will reach the MIT Police Department; they will respond faster than 911.

## Harassment Policy

HMMT strictly does not tolerate harassment or violence of any form to our competitors and staff, regardless of the identity of the offender. If you believe that you or your competitors have been harassed, please immediately call the MIT Police Department at (617) 253-1212.

# Sponsors

Thank you to our sponsors for making HMMT possible!



hudson river trading



CITADEL | CITADEL Securities



# HMMT Officers and Staff

## Officer Team

### Tournament Directors

- Jerry Liang
- Sophie Wu

### Community Coordinators

- Minnie Liang
- Will Wang

### Education Directors

- Jack Austen
- Amy He

### Finance Directors

- Justin Li
- Miranda Zhao

### Friday Night Events Directors

- Shiqi Cheng
- Julia Liu

### Historian

- Vivian Tan

### Inventory Czar

- Alan Lee

### Outreach Directors

- Yina Wang
- Andrew Yu

### Tournament Directors Emeriti

- Claire Chen
- William Hu

## Staff Members

### Chief Proctors

- Aaron Kim
- Andy Zheng
- Christine Huang
- Deyan Hadzhi-Manich
- Evan Chang
- Joseph Wang
- Lillian Zhong
- Michelle Liang

### Problem Czars

- Derek Liu
- Albert Wang
- Isabella Zhu
- Ethan Liu
- Jacob Paltrowitz
- Karthik Vedula

### Problems Advisor

- Pitchayut Saengrungkongka

### Registration Directors

- Sebastian Attlan
- Sarah Xuan

### Registration Advisor

- Grace Liu

### Schedules Coordinators

- Cheuk Hei Chu
- Grace Zhou

### Schedules Advisor

- Orion Foo

### Software Directors

- Julia Kozak
- Katherine Li

### Software Advisor

- Brian Shi

### Chief Proctors (continued)

- Richard Qi
- Tina Wang

### Community Associates

- Jeffrey Li
- Mikayla Lin
- Sophia Hou

**Education Assistants**

- Alena Zhang
- Anton Levonian
- Eunsu Hur
- Joaquin de Castro
- Melissa Li

**Finance Associates**

- Hammad Khalil
- Laura Liu

**Friday Night Events Assistants**

- Evie Zhang
- Jesse Brodtman
- Lucia Wang

**Inventory Associate**

- Sophia Chen

**Outreach Associates**

- Albert Tang
- Daria Ivanova
- Hannah Ding
- Laura Zhang

**Photographer**

- Grace Zhang

**Problems Staff**

- Aaron Guo
- Aaron Li
- Akshaya Chakravarthy
- Alan Vladimiroff
- Amy Feng
- Arnav Goel
- Arul Kolla
- Benjamin Shimabukuro
- Carlos Rodriguez
- Daeho Lee
- David Dong
- David Wei
- Derek Zhao
- Edward Yu
- Elliott Liu
- Emma Li

**Problems Staff (continued)**

- Evan Erickson
- Haozhe Yang
- Henrick Rabinovitz
- Holden Mui
- Isaac Zhu
- Jackson Dryg
- Jacopo Rizzo
- Jaedon Whyte
- Jer Ren Wong
- Jessica Wan
- Jordan Lefkowitz
- Justin Lu
- Katelyn Zhou
- Kevin Wu
- Kevin Zhao
- Krishna Pothapragada
- Linus Tang
- Marin Hristov
- Michelle Kang
- Nickolas Ellison
- Ruiyang Luo
- Sam Huang
- Sarunyu Thongjarast
- Srinivas Arun
- Vasawat Rawangwong
- Vishal Nandakumar
- Won Jang
- Zian Shang

**Registration Associates**

- Catherine Li
- Eric Sui
- Fiona Shangguan
- Garima Rastogi
- Julie Lavigne
- Pavan Jayaraman

**Software Staff**

- Angela Guo
- Medha Mahanta
- Pranav Sitaraman
- Samuel Tesfai



Map also at [whereis.mit.edu](https://whereis.mit.edu)

---

HMMT Season 28  
February **2025**