



24th Bay Area Mathematical Olympiad

Scores and awards

March 1, 2023

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1 Overview

Nearly 600 students took part in the 24th BAMO on March 1, 2023, with 373 taking BAMO-8 and 221 taking BAMO-12. Over 100 schools were represented in nearly 40 different proctoring locations, including 81 participants from Seattle, Santa Cruz, Santa Barbara, Los Angeles, and San Diego.

Every BAMO since the first exam in 1999 (with the exception of 2020, due to the pandemic) has an awards ceremony take place a week or two after the exam, featuring a math talk by an exceptional speaker, followed by a brief presentation of awards. Prizes consist of T-shirts, electronic gift certificates for Powell's Bookstore, and Jamba Juice certificates for winning schools. This year's awards ceremony took place on Sunday, March 19, at Santa Clara University, and the speaker was Inna Zakharevich (Cornell University), who spoke about "Solving polynomials with origami."

For more information about BAMO, please visit <https://www.bamo.org>.

1.1 Score distributions

Each problem was worth 7 points, so the maximum total score for each exam was 35 points. The median scores were 15 and 12 points, respectively, for BAMO-8 and BAMO-12. The first two tables show the score distribution for each problem, and the third table shows the rank corresponding to a given score. For example, in BAMO-8, 72 people scored above 20 points.

| BAMO-8 | A | B | C1 | D2 | E3 |
|--------|-----|-----|----|----|-----|
| blank | 17 | 8 | 19 | 79 | 144 |
| 0 | 5 | 6 | 54 | 51 | 103 |
| 1 | 24 | 9 | 77 | 47 | 75 |
| 2 | 16 | 34 | 59 | 43 | 29 |
| 3 | 109 | 38 | 28 | 74 | 4 |
| 4 | 35 | 29 | 46 | 41 | 2 |
| 5 | 50 | 51 | 18 | 7 | 3 |
| 6 | 35 | 127 | 14 | 6 | 3 |
| 7 | 82 | 71 | 58 | 25 | 10 |
| median | 4 | 6 | 2 | 3 | 1 |

| BAMO-12 | C1 | D2 | E3 | 4 | 5 |
|---------|----|----|----|----|-----|
| blank | 4 | 15 | 85 | 88 | 104 |
| 0 | 5 | 3 | 29 | 39 | 23 |
| 1 | 17 | 14 | 30 | 44 | 49 |
| 2 | 30 | 27 | 10 | 12 | 27 |
| 3 | 35 | 32 | 3 | 6 | 5 |
| 4 | 21 | 24 | 5 | 2 | 4 |
| 5 | 13 | 7 | 9 | 4 | 1 |
| 6 | 13 | 4 | 9 | 3 | 5 |
| 7 | 83 | 95 | 41 | 23 | 3 |
| median | 5 | 5 | 2 | 1 | 1 |

| Score | 5 | 10 | 15 | 20 | 25 | 30 |
|--------------|-----|-----|-----|----|----|----|
| BAMO-8 rank | 343 | 267 | 160 | 73 | 18 | 8 |
| BAMO-12 rank | 188 | 133 | 70 | 46 | 22 | 8 |

2 Individual awards

The BAMO-12 rankings are slightly different from what was reported at the awards ceremony on Mar. 19, 2023. Afterwards, we discovered several papers for problem #5 which had not been uploaded to the grading platform. This resulted in a tie for first place and a number of increased scores. In particular, we were impressed with the number of strong solutions to problem #5: three perfect papers, and five that missed full credit by just one point.

2.1 BAMO-8, Scoring 28 or more points

| Name | School | Score |
|------------------|-------------------------------------|-------|
| Atticus Stewart | Mirman School | 34 |
| Alex Zhan | Basis Independent Silicon Valley | 34 |
| Krittika Chandra | Jane Lathrop Stanford Middle School | 33 |
| Prince Rohatgi | Medea Creek Middle School | 32 |
| Kieran Callahan | Synapse School | 31 |
| Daphne Chen | Basis Independent Silicon Valley | 31 |
| Minghao Guo | Portola Highly Gifted Magnet School | 31 |
| Nupur Krishnan | Gale Ranch Middle School | 30 |
| Tejo Madhavarapu | Rivendell Academy of Fremont | 29 |
| Nathan Chen | Basis Independent Silicon Valley | 28 |
| Satyaki Sen | John F. Kennedy Middle School | 28 |

2.2 BAMO-8, Honorable Mention (24–27 points)

| Name | School |
|-------------------|-------------------------------------|
| Anshuman Arun | Harvest Park Middle School |
| Manalee Chowdhury | The Harker School |
| Alexey Chub | Odle Middle School |
| Anshul Dandekar | Bayside Academy |
| Kaiyuan Ding | Ellen Fletcher Middle School |
| Itai Firstenberg | Helios School |
| Aiden Fong | Orinda Intermediate School |
| Allison Guan | The Nueva School |
| Seojin Kim | Harvest Park Middle School |
| Alena Kutsuk | Graham Middle School |
| Connor Leong | Crocker Middle School |
| Patrick Liang | Portola Highly Gifted Magnet School |
| Kevin Lu | Bayside Academy |
| Elliot Maa | Frank S. Green Jr. Middle School |
| Henry Meier | Jane Addams Middle School |
| Bridget Procter | Proof School |
| Jayson Quah | Harvest Park Middle School |
| Vsevolod Titov | Rose Hill Middle School |
| Alan Verbitski | Willows Preparatory School |
| Kyle Wan | Proof School |
| Alice Wang | Bayside Academy |
| Derek Wu | Dorris-Eaton School |
| Graham Zhang | Proof School |
| Pablo Zhang | The Nueva School |
| Randy Zhong | Ellen Fletcher Middle School |

2.3 BAMO-12, Scoring 28 or more points

| Name | School | Score |
|----------------------|----------------------------------|-------|
| Linus Tang | Davidson Academy Online | 35 |
| Justin Lee | Peach Blossom | 35 |
| Elliott Liu | Torrey Pines High School | 32 |
| Robin Sharif | Mission Vista High School | 32 |
| Sebastian Weinberger | College Prep | 31 |
| David Zhang | Dougherty Valley High School | 31 |
| Sheldon Tan | Monte Vista High School | 31 |
| Catherine Li | The Harker School | 29 |
| Taiga Nishida | The Nueva School | 29 |
| Jacopo Rizzo | Torrey Pines High School | 29 |
| Rohan Garg | Amador Valley High School | 28 |
| Ritwin Narra | Silver Creek High School | 28 |
| Yourui Shao | Basis Independent Silicon Valley | 28 |
| Owen Xu | Branson | 28 |
| William Zhao | Dougherty Valley High School | 28 |

2.4 BAMO-12, Honorable Mention (22–27 points)

| Name | School |
|------------------|----------------------------------|
| Fateh Aliyev | Venice High School |
| Anju Aoi | Proof School |
| Kailua Cheng | Amador Valley High School |
| Hugh Cheng | Harvard-Westlake School |
| Rohan Das | Basis Independent Silicon Valley |
| Jonathan Du | Los Altos High School |
| Hannah Fox | Proof School |
| Ryan Fu | Amador Valley High School |
| Pico Gilman | Proof School |
| Jackson Gish | Proof School |
| Neil Kolekar | Los Altos High School |
| Alan Lee | Gunn High School |
| Michelle Liang | Canyon Crest Academy |
| Angela Liu | Homeschooled |
| Felix Liu | Basis Independent Silicon Valley |
| Rohan Ramkumar | The Harker School |
| Arnav Ratna | College Prep |
| Marius Rutkowski | La Canada High School |
| Julia Xiang | Dougherty Valley High School |
| Nathan Ye | Gunn High School |
| Alex Zitzewitz | Proof School |

3 School Awards

BAMO recognizes two types of school awards: *participation* awards, going to the schools with the largest number of students scoring at least 7 points (one problem) on the exam, and *team* awards, measured by the sum of scores of the top three students from each school.

3.1 BAMO-8 Participation Awards

| School | # Students |
|------------------------------|------------|
| Ellen Fletcher Middle School | 37 |
| The Nueva School | 24 |
| Proof School | 18 |

3.2 BAMO-12 Participation Awards

| School | # Students |
|---------------------------|------------|
| Proof School | 24 |
| Henry M. Gunn High School | 15 |
| Amador Valley High School | 9 |
| La Canada High School | 9 |
| Palo Alto High School | 9 |

3.3 BAMO-8 Team Awards

| School | Sum of three highest scores |
|----------------------------------|-----------------------------|
| Basis Independent Silicon Valley | 93 |
| Harvest Park Middle School | 75 |
| Proof School | 74 |
| Ellen Fletcher Middle School | 74 |

3.4 BAMO-12 Team Awards

| School | Sum of three highest scores |
|------------------------------|-----------------------------|
| Amador Valley High School | 81 |
| Dougherty Valley High School | 79 |
| Proof School | 77 |

4 Special Awards

BAMO special awards single out students for unusually creative solutions, unusually good art, excellent writing, and also, exceptional youth. This year we gave several Young Student Awards, for the top BAMO-8 students among the 30 participants in grades 5 or younger.

| Name | School | Grade | Score |
|-----------------|-------------------------|-------|-------|
| Alexander Braun | Noesis School | 5 | 21 |
| Riaan Govind | Synapse School | 5 | 20 |
| Ayden Bi | Pinewood School | 4 | 20 |
| Wilson Wei | Sutter Elementary | 4 | 18 |
| Alvin Zhu | Homeschooled | 3 | 15 |
| Lucas Zhang | Walnut Grove Elementary | 3 | 12 |

And last but not least, we awarded the Best Art Award to Daniel Luo, a 7th grader at Ellen Fletcher Middle School, for an outstanding map of the world drawn in lieu of a solution to problem E3.