

ELMO Awards

Definitely Henry Jiang

Math Olympiad Program



June 25, 2024

Team Awards





3rd Place (67 points):



3rd Place (67 points): Penguins
Jessica Wan, Linus Tang

- Karn Chutinan
- Calvin Wang
- David Lee
- Gloria Ma
- Kevin Liu
- Sophia Jin



3rd Place (67 points): Penguins
Jessica Wan, Linus Tang

- Karn Chutinan
- Calvin Wang
- David Lee
- Gloria Ma
- Kevin Liu
- Sophia Jin

2nd Place (76 points):



3rd Place (67 points): Penguins

Jessica Wan, Linus Tang

- Karn Chutinan
- Calvin Wang
- David Lee
- Gloria Ma
- Kevin Liu
- Sophia Jin

2nd Place (76 points): West Coast
Best Coast

Amy Cui, Mingyue Yang

- Alansha Jiang
- Hengrui Liang
- Julia Xiang
- Benjamin Fu
- Owen Zhang
- Jonathan Du

Team Awards





1st Place (100 points):



1st Place (100 points):
Next-Generation Olympians
Emily Yu, Sophia Zhang

- Michael Zhao
- Alan Cheng
- Krittika Chandra
- Liam Reddy
- Grant Blitz

Individual Awards





Bronze Medalists:



Bronze Medalists:

- Nick Zhang



Bronze Medalists:

- Nick Zhang
- Ray Zhao



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang



Silver Medalists:

Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang

Silver Medalists:

- Oron Wang



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang

Silver Medalists:

- Oron Wang
- Alan Cheng



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang

Silver Medalists:

- Oron Wang
- Alan Cheng
- Liam Reddy



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang

Silver Medalists:

- Oron Wang
- Alan Cheng
- Liam Reddy
- Grant Blitz



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang

Silver Medalists:

- Oron Wang
- Alan Cheng
- Liam Reddy
- Grant Blitz
- Calvin Wang



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang

Silver Medalists:

- Oron Wang
- Alan Cheng
- Liam Reddy
- Grant Blitz
- Calvin Wang
- Vikram Sarkar



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang

Silver Medalists:

- Oron Wang
- Alan Cheng
- Liam Reddy
- Grant Blitz
- Calvin Wang
- Vikram Sarkar

Gold Medalists:



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang

Silver Medalists:

- Oron Wang
- Alan Cheng
- Liam Reddy
- Grant Blitz
- Calvin Wang
- Vikram Sarkar

Gold Medalists:

- Michael Zhao



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang

Silver Medalists:

- Oron Wang
- Alan Cheng
- Liam Reddy
- Grant Blitz
- Calvin Wang
- Vikram Sarkar

Gold Medalists:

- Michael Zhao
- Karn Chutinan



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang

Silver Medalists:

- Oron Wang
- Alan Cheng
- Liam Reddy
- Grant Blitz
- Calvin Wang
- Vikram Sarkar

Gold Medalists:

- Michael Zhao
- Karn Chutinan
- Jonathan Du



Bronze Medalists:

- Nick Zhang
- Ray Zhao
- Ritwin Narra
- Lucas Lin
- Darsh Patel
- Alansha Jiang
- Hengrui Liang
- Owen Zhang

Silver Medalists:

- Oron Wang
- Alan Cheng
- Liam Reddy
- Grant Blitz
- Calvin Wang
- Vikram Sarkar

Gold Medalists:

- Michael Zhao
- Karn Chutinan
- Jonathan Du

International Individual Awards





Bronze Medalists:



Bronze Medalists:

- Alice Chen



Bronze Medalists:

- Alice Chen
- Bo-Cheng Huang



Bronze Medalists:

- Alice Chen
- Bo-Cheng Huang
- Netta Ilani



Bronze Medalists:

- Alice Chen
- Bo-Cheng Huang
- Netta Ilani
- Victor Dragos



Bronze Medalists:

- Alice Chen
- Bo-Cheng Huang
- Netta Ilani
- Victor Dragos

Silver Medalists:



Bronze Medalists:

- Alice Chen
- Bo-Cheng Huang
- Netta Ilani
- Victor Dragos

Silver Medalists:

- Raz Dvora



Bronze Medalists:

- Alice Chen
- Bo-Cheng Huang
- Netta Ilani
- Victor Dragos

Silver Medalists:

- Raz Dvora
- Seongjin Shim



Bronze Medalists:

- Alice Chen
- Bo-Cheng Huang
- Netta Ilani
- Victor Dragos

Silver Medalists:

- Raz Dvora
- Seongjin Shim

Gold Medalists:



Bronze Medalists:

- Alice Chen
- Bo-Cheng Huang
- Netta Ilani
- Victor Dragos

Silver Medalists:

- Raz Dvora
- Seongjin Shim

Gold Medalists:

- Drew Ramirez



Bronze Medalists:

- Alice Chen
- Bo-Cheng Huang
- Netta Ilani
- Victor Dragos

Silver Medalists:

- Raz Dvora
- Seongjin Shim

Gold Medalists:

- Drew Ramirez
- Warren Bei



Bronze Medalists:

- Alice Chen
- Bo-Cheng Huang
- Netta Ilani
- Victor Dragos

Silver Medalists:

- Raz Dvora
- Seongjin Shim

Gold Medalists:

- Drew Ramirez
- Warren Bei



Domestic Ravi Award:



Domestic Ravi Award: Liam Reddy



Domestic Ravi Award: Liam Reddy
International Ravi Award:



Domestic Ravi Award: Liam Reddy
International Ravi Award: Drew Ramirez



Domestic Ravi Award: Liam Reddy
International Ravi Award: Drew Ramirez
Highest ELSMO Scorer:

Special Awards



Domestic Ravi Award: Liam Reddy
International Ravi Award: Drew Ramirez
Highest ELSMO Scorer: Liam Reddy

Special Awards



Domestic Ravi Award: Liam Reddy
International Ravi Award: Drew Ramirez
Highest ELSMO Scorer: Liam Reddy

More Special Awards



Best handwriting:

More Special Awards



Best handwriting: Benny Wang

Now we can use the 'euclidean algorithm' to simplify things out -
if $f^a(x) = x + A$ and $f^b(x) = x + B$, with $a > b$, it follows that $f^{a-b}(x) = x + A - B$.

Let $a(i)$ denote $[\# \text{ of left parentheses to the left of } x_i] - [\# \text{ of right parentheses to the left of } x_i]$. If $\exists j \neq k$ st. $\gcd(a(j), a(k)) = 1$, we can use the euclidean algorithm to simplify to $f(x) = x + C$; plugging into the original FE would force $C = 0$ and we're done. Otherwise, assume $\gcd(a(1), a(2), \dots, a(n)) = d > 1$.

More Special Awards



“Best” handwriting:

More Special Awards



"Best" handwriting: David Lee

$2^a + 1$ is the only set containing $2^a + 1$, and consequently $2^a + 1$.

any set $S_2 a_1, \dots, S_2 a_n$, there is always at least one

definite difference 2^a between any two distinct things

deducible considering the binary representation of the number.

$2^a + 1 = \overline{10 \dots 01}$. 1 and 0 are things have at least one 1 in between, so there is two and a difference.

More Special Awards



Notable submission:

More Special Awards



Notable submission: Lucas Lin

