Minnesota State High School Mathematics League

Newsletter

Issue #46, November 13, 2024

A message from the Executive Director, Tom Young

Here's Newsletter #2 for the 2024 – 2025 season. One Meet done; four to go!! Good Luck to everyone

In this newsletter, notice these items

1. A message from **Executive Director** *Tom Young*
2. A message from **Head of Problem Writing Team** *Colin Gardner – Springer* ***(with hints for Meet Two!)***
3. Ads for State Tournament T-Shirt Design and Video Contest
4. All-State Team Update: Notable performances at Berkeley
5. Order a Math League Polo Shirt
6. Dates for SMI 2025
7. Ad for All State Math Team co – coach
8. Call for Grading and Data Entry paid helpers at State Tournament
9. Problem Corner

1. A Message from Executive Director Tom Young

Greetings!

Meet One is in the books and the new format has drawn rave reviews. While visiting Spring Lake Park last Monday for the North Suburban Division's implementation of the "one size fits all" change, a coach commented on how great it was having all students take all tests. I replied, "We're slow learners in Math League… it took us 45 years to figure it out!" But thanks to the efforts of coaches attending workshops in the summer of 2023, an effective change emerged through a rigorous process.

There have been notable changes over the years championed by coaches. Four that come to mind are the Ordinal Scoring system proposed by Cindy Boo (Anoka), the Qualifying for State by Section method shepherded by Curt Michener (Elk River), the OnLine Scoring and Archive system created by Gary Kannel (Holy Family), and Weighted Grading forwarded by many.

If you notice an area that needs possible revision, speak up! And attend the 2025 Summer Coaches Conference where many of these ideas are conceived and fostered. It's a Hall of Fame year! Send nominations!

Take notice of the advertisement for the Summer Math Institute 2025. This will be the 13th "modern era" edition, having long-eclipsed the 90s run of SMIs. There are many students who would enjoy the week! Encourage them!

Also notice the call for graders and data entry people for the State Tournament. We need you!

Go. Math. Team.

2. A message from Colin Gardner – Springer

Congratulations to all on a successful Meet 1, our first under the revised structure! I was delighted to see that most students and schools achieved some success, including less experienced and younger students. Twenty students from across the state achieved a perfect individual score of 15/15, and five schools scored a perfect 30/30 on the team round - well done!

Please remind your students of the big hint we're giving for each Meet this season: **At least one problem on each Meet will be nearly identical to a problem from the corresponding .1 Sample Meet.** So for Meet 2, this means that they can expect to see at least one problem from Sample Meet 2.1 (*as an additional hint, they'll actually see two such problems on Meet 2!*).

You can find Sample Meets in this shared Google Drive folder, which is updated as necessary if typos are discovered. Please let me know if you or your students find a transcription error - these problems did not go through the full vetting process that we use for the actual Meets, and any errors are my (Colin's) fault alone. Thanks to those who have passed along issues discovered so far.

On Meet 1, both A1 and T4 were recycled problems from Sample Meet 1.1. I was happy that most students solved A1, but disappointed that only around 20% of teams correctly answered T4 (which was just B5 from Sample Meet 1.1, with the numbers doubled). Any team (or individual) with aspirations of qualifying for State should be carefully reviewing these Sample Meets and at least someone on the team should fully understand how to solve any particular problem from the sample meet!

The other feedback I'd like to share is to please remind your students to carefully re-read each question and make sure their answer is appropriate to the question asked! Problem C4 on Meet 1 was as follows:

4. $N =$ _____ Suppose $N = 537\square\square$, a five-digit number whose last two digits are unknown. Given that N is divisible by 99, what is N?

The question clearly calls out that N is a five-digit number, it's divisible by 99, asks for N, and the answer blank includes "N=" as a reminder. Nevertheless, a sizable number of students gave an answer of "57" which satisfies none of these criteria, rather than the correct answer of 53757. Perhaps they saw the two boxes and fixated on filling them in. We aren't trying to "trick" students, and always want to give credit for correct work, but although these students undoubtedly went through all the steps necessary to arrive at the correct answer (for which they should be congratulated), we can only grade them based on the number written in their answer blank.

Thank you for coaching Math Team, and especially for your extra efforts this season with the major format change and topics reorganization. I'm extremely appreciative of your efforts.

Best wishes on Meet 2 as we enter the heart of the season!

Colin Gardner-Springer
Head of the problem writing team
colin@gardner-springer.com

3.
MN State High School Math League
Math Team Video Contest

1st place: $200 to school's math team
2nd place: $150 to school's math team
3rd place: $100 to school's math team

Video Guidelines:

Produce a 90 second video explaining why you like to be involved in the Math League. Videos might include: student interviews, teacher endorsements, sample problems, or video of practices/meets.

Video Entry Submission:

Videos are due to the Math League Office (mathleague@augsburg.edu) by *March 4th, 2025*.

• Videos contest entries must be sent and approved by the school math team coach.

• Winning schools will be notified by March 7, 2025.

• Winning video will be shown at the State Tournament on March 10, 2025, uploaded to the Math League website, and may be used for recruitment efforts

Cleverness Appreciated!

MN State High School Math League
2025 State Tournament

T-shirt Design Contest

Prize: **$50 VISA Gift Card and a Free T-shirt**

How to enter:

Submit a one-color design for the t-shirt front.

The design should include the words:

MN State HS Math League State Tournament March 10, 2025

Special consideration given to clever designs that incorporate the fact that it's the League's 45^{th} year and $45^2 = 2025$

- Email your design by **Feb. 8** to: mathleague@augsburg.edu
- Accepted file format: pdf only
- Include your name, grade and school in the email submission.
- Winner will be notified by Feb. 11th via email.

Email mathleague@augsburg.edu with questions

4. All State Team results from Berkeley Math Tournament

At the Berkeley Math tournament on November 2nd, our team members had great performances

Honorable Mention:

Eric Zhao
Ronan Keel
Jacob Levinshteyn
Allison Zhang
Eleanore Ternes
Will Masanz

Honorable Mention:

Zack Berchenko (Discrete)
Zack Berchenko (Algebra)
Aniket Yeleswarapu (General)

Top 10:

Jefferson Zhou (Geometry)

Taison Scofield (*2nd Place General out of 400 competitors*)

Way to go Team!!

5. Buy an embroidered Math League Polo Shirt

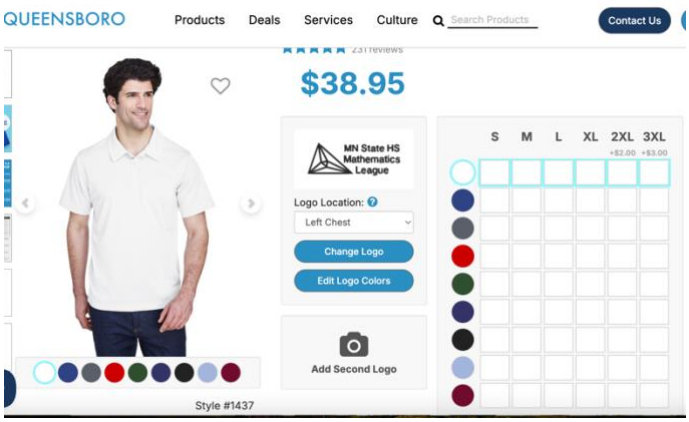
Would you like to buy a Polo Shirt embroidered with the League logo?

Here is what the shirt looks in a Men's Medium

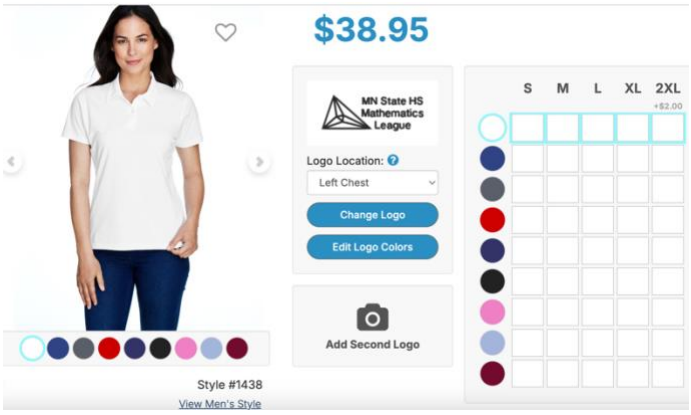
The retail price of the shirts is $38.95 but we get a discount. We can offer the shirt to you for $25. If you would like to order a shirt, ***return a copy of the order form*** with the size and color you want to tomyoungmathman@gmail.com. Orders needed by November 20th. The shirt is 100% polyester

Pay with a check (we don't do Venmo) to

MN State High School Math League
Augsburg University Campus Box #22
2211 Riverside Avenue
Minneapolis, MN 55454



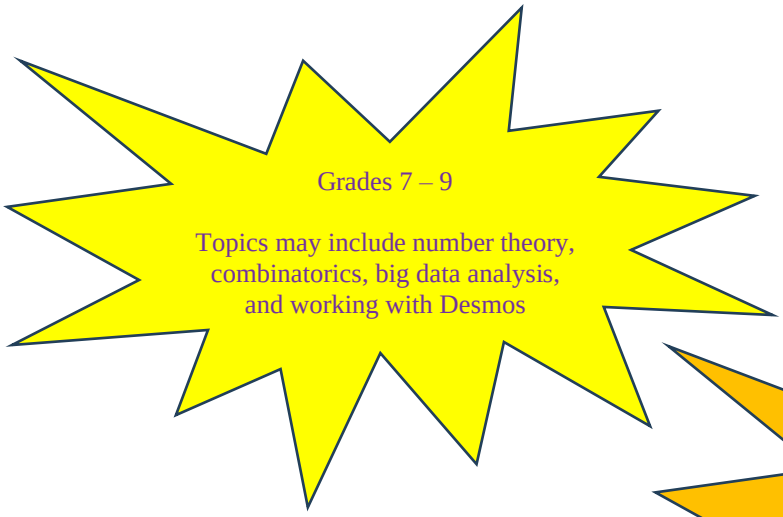
Go. Math. Team.

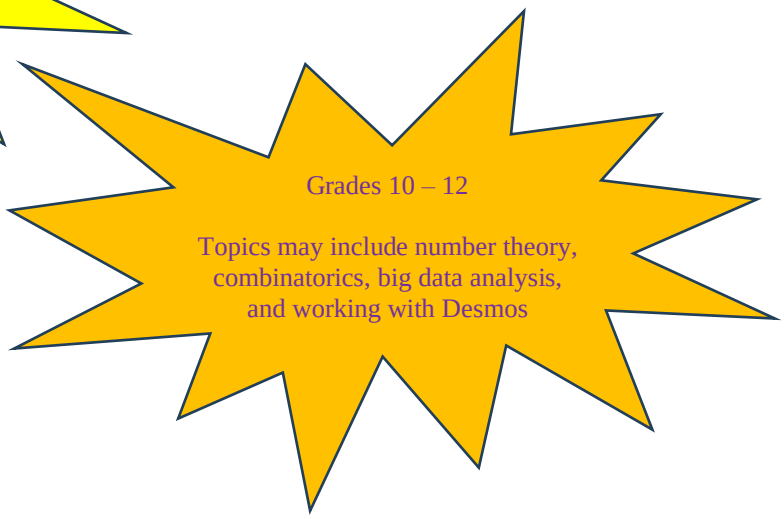


6. Dates for **Summer Math Institute**

SMI: June 22 – June 27, 2025

More information to follow but spread the word to students hungry for exciting math!





==========

7. Add for All-State Math Team co-Coach

Want to work with high ability math students? Organize trips to Harvard, Carnegie Mellon, and ARML? Create practice sessions to further understanding??

Then we have a position for you!!

Send inquiries to Tom Young at tomyoungmathman@gmail.com

8. A call for **help** at the State Tournament Monday, March 10 at Spring Lake Park high school.

Because all students take all tests, we need 16 to 20 graders and 8 to 10 data entry workers.

The position pays $50 for the day

Please consider!

==========

Problem Corner

an effort to spur conversation

If you'd like to contribute a problem or send in a solution, email tomyoungmathman@gmail.com

Student solutions encouraged!

Newsletter Puzzler #45

Read OEIS entry A363381 and imagine it in 3D. Send ideas to Executive Director Tom Young

Solutions? **Read essay at** 3D Fundamental Building Blocks

Newsletter Puzzler #46

From a Putnam Exam

Calculate the probability that the center of a sphere is inside a tetrahedron whose vertices are four randomly chosen points on the sphere.