Here's Newsletter #3 for the 2024 – 2025 season. Two Meets done; three to go!! Good Luck to everyone

In this newsletter, notice these items

1. A message from **Executive Director** *Tom Young*
2. **League Official Clarification on Permissible Items while Taking a Test**
3. A message from **Head of Problem Writing Team** *Colin Gardner – Springer (**hints for Meet Three!***)
4. Ads for State Tournament T-Shirt Design and Video Contest
5. Dates for SMI 2025 – Preliminary Schedule
6. Ad for All State Math Team co – coach
7. Call for Grading and Data Entry paid helpers at State Tournament
8. Problem Corner

1.   A Message from Executive Director Tom Young

Meet Two brought up instances of difficulties using the online scoring system. They fell into these general categories:

1. Internet and Wi-fi issues
2. Students not knowing how/when to input answers
3. Students ran out of time but had the answer on their paper copy
4. Coaches **giving credit**/**not giving credit** when credit **should not**/**should** have been given

Troubles with the Internet are bound to crop up here and there. Student(s) should be instructed to alert their coach of issues with the Internet and therefore the inability to use the online program as intended. Student(s) should finish the event on paper and the coach should enter the scores using Meet Op -> Score Entry offline taken.

The "failure of the Internet/software" should not, however, be used as an excuse for a student not knowing how, or forgetting, to enter their solutions into their computer. If a school chooses to use the online system,

the computer submitted answer is the official answer, not the answer on the paper.

For consistent grading across the state, coaches (when verifying their student scores) can override the online system for these situations:

- o The answers match but the online system didn't mark it correct. For instance, the answer might be 47 but the student typed <space>47
- o The student included the units (or comma) in their answer. All that is required is an integer answer

All other questions of giving credit should be challenged and adjudicated at the League level for consistency.

==

> **A successful challenge for B3 was begrudgingly granted due to a convincing argument that degenerate triangles should be considered.**

Martin Young

A degenerate triangle

Coaches: Attend the 2025 Summer Coaches Conference to continue to learn and help shape the future of the League. It's a Hall of Fame year! Send nominations!

Take notice of the advertisement and preliminary lineup for the Summer Math Institute 2025. There are many students who would enjoy the week! Encourage them!

Go. Math. Team.
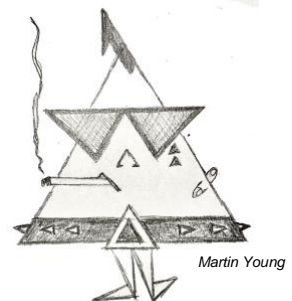
3. A message from Colin Gardner – Springer

During my Coaches' Conference session on this year's new event format, I asked for your input on how difficult the problems should be on individual events. Your responses lined up closely with my targets, which in turn closely align with actual statewide season to date performance:

	My Target	Your Median Response	Meet 1 & 2 Average Event Performance
Easiest Problem	90%	90%	88%
2nd Easiest Problem	80%	75%	76%
Median Problem	50%	50%	39%
2nd Hardest Problem	25%	30%	22%
Hardest Problem	1-10%	10%	11%

I've been pleased to see these results coming in close to target, although I anticipate performance dropping somewhat over the remaining three Meets.

You may have noticed that some events have been significantly easier than others. This is entirely intentional - I want strong students everywhere to have a chance at achieving a perfect 5 event score. In past years, I didn't know who would take which event, so I'd generally include problems in each event to challenge top students statewide. This is no longer necessary now that all students are taking all events. For instance, this season's performance on hardest problems (which are usually, but not always, problem 5) have ranged from 3.5% to 20%.

We know that this year's changes have been substantial, and appreciate the extra effort put in by you, our math team coaches, to make this transition as smooth as possible for our students.

Finally, please don't forget to make Sample Meet 3.1 available to your students. You might also want to let them know that **two** of the problems they'll face on Meet 3 are taken directly from this sample!

Best wishes,

Colin Gardner-Springer
Head of the Problem Writing Team
colin@gardner-springer.com

4.
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 45th 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

5. Summary Math Institute

SMI: June 22 – June 27, 2025

Preliminary Summer Math Institute Lineup (subject to minor changes)

|		7th through 9th graders	10th through 12th graders
Monday	Morning	String Polyhedra, Creating Puzzles, Ambigrams	Visualizing Big Data
Monday	Afternoon	Visualizing Big Data	String Polyhedra, Creating Puzzles, Ambigrams
Tuesday	Morning	The Wonders of Desmos	Intriguing Number Theory
Tuesday	Afternoon	Intriguing Number Theory	The Wonders of Desmos
Wednesday	Morning	The Wonders of Desmos	Intriguing Number Theory
Wednesday	Afternoon	Intriguing Number Theory	The Wonders of Desmos
Thursday	Morning	Fibonacci and Figurate numbers	Counting and Combinatorics in the AMC
Thursday	Afternoon	Counting and Combinatorics in the AMC	??
Friday	Morning	Fibonacci and Figurate numbers	Counting and Combinatorics in the AMC
Friday	Afternoon	Counting and Combinatorics in the AMC	??

Featured Instructors: **Scott Kim**, **Annie Perkins**, **Ben Orlin**

6. Ad 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

Martin Young

Degenerate triangle mug shot

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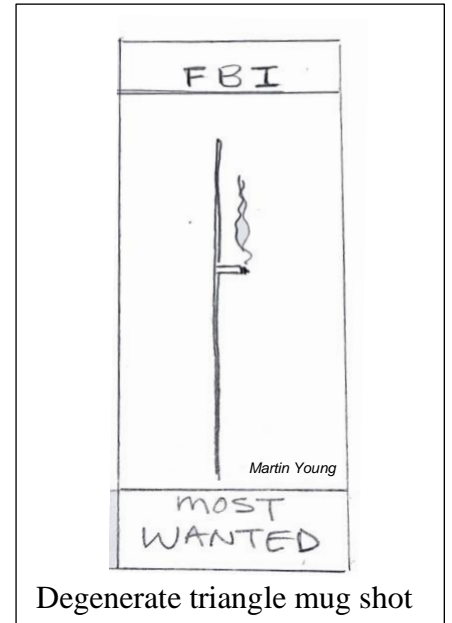
7. A call for **help** at the State Tournament Monday, March 10 at Spring Lake Park high school.

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!

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

SOLUTION

Newsletter Puzzler #47

Given an equilateral triangle with 9 smaller equilateral triangles. Find a way to break the larger triangle into three equal "shapes", i. e. , three shapes that tesselate the larger triangle.   The three "shapes", consisting of 3 smaller triangles, should be identical when oriented the same. Here is an example of a "shape" that does not work. The triangle cannot be tessellated with the blue shape.