



Here's Newsletter #4 for the 2024 – 2025 season. Three Meets done; two to go!! Good Luck to everyone

In this newsletter, notice these items

1. A message from **Executive Director Tom Young**
2. Clarification of tools that can be used
3. A message from **Head of Problem Writing Team Colin Gardner – Springer** (*hints for Meet Four!*)
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:

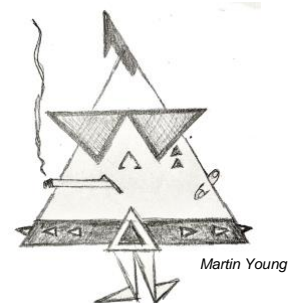
- The answers match but the online system didn't mark it correct. For instance, the answer might be 47 but the student typed <space>47
- The student included the units (or comma) in their answer. All that is required is an integer answer

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

**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.



A degenerate triangle

## 2. League Official Clarification on Permissible Items while Taking a Test

While the League Manual allows for writing utensils, language translators, and the formula sheet and specifically prohibits calculators, it does not weigh in on other modes of assistance. This needs to be codified in the League Manual but for consistency in the last 3 meets, the only tools for solving will be paper and pencil and the formula sheet. Therefore, rulers, protractors, graph paper, etc. should not be allowed. Previous use is grandfathered.

## 3. A message from Colin Gardner – Springer

No, your students weren't imagining things - Meet 3 was a significant step up in difficulty!

Average individual scores have dropped by approximately 1 point per Meet this season: from 7.7 in Meet 1, to 6.5 in Meet 2, and 5.4 on Meet 3. My hope is that scores will be slightly higher again for the final two Meets.

Meet 3 also had problems to challenge the very best: congratulations to Jefferson Zhou and Sam Kretzschmar who were the only individuals scoring a perfect 15/15, and to Century, Minnetonka, and Spring Lake Park who were the only schools scoring 6/6 on the Team round.

Among the big changes this year is the inclusion of a formula sheet to be used by students while taking the Meets. We hope that this has encouraged them to prepare by solving practice problems rather than memorizing formulas.

Despite having a formula sheet, students should be aware that **not all required formulae are provided on the sheet**. In Meet 4 for instance, topics like Vieta's formulas, Geometric Sequences and Series, and Expected Value (among others) are not included on the formula sheet. Where possible I'd encourage you to help students understand the thought process behind such formulas rather than asking them to memorize them.

For instance, the geometric series  $3 + 6 + 12 + 24 + \dots + 384 + 768$  can be evaluated using the formula

$$S = \alpha \frac{r^n - 1}{r - 1}$$

, but I think it's more informative to instead set

$$x = 3 + 6 + 12 + 24 + \dots + 384 + 768 ,$$

multiply by the common ratio of 2 giving

$$2x = 6 + 12 + 24 + \dots + 384 + 768 + 1536 ,$$

subtract to get  $2x - x = -3 + 1536$ , giving the sum of  $x = 1533$ .

Understanding this process is more valuable than just memorizing a formula, and can also be applied to solve trickier problems where the base formula doesn't apply, like  $1 \cdot 1 + 2 \cdot 2 + 3 \cdot 4 + 4 \cdot 8 + 5 \cdot 16 + \dots + 12 \cdot 2048$ .

As usual don't forget to share the two [Sample Meets](#) with your students: **at least one Meet 4 problem comes from Sample Meet 4.1**. I'd like to give special thanks to the students on the All-State Math Team Discord who proofread Meet 4's sample problems.

These Sample Meets don't include solution writeups, but the problem code on the answer sheets should allow you to look these up when needed. For instance the "21-22 1D1" notation under the answer for problem A1 on Sample Meet 4.1 indicates that this problem was originally D1 on Meet 1 from the 2021-22 season. Knowing this, the solution writeup can be found on the [Meet Archives](#) page on our league scoring site.

Happy 2025!

Colin Gardner-Springer

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Head of the Problem Writing Team

## 4.

# MN State High School Math League Math Team Video Contest

1<sup>st</sup> place: \$200 to school's math team

2<sup>nd</sup> place: \$150 to school's math team

3<sup>rd</sup> 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@augsborg.edu](mailto:mathleague@augsborg.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<sup>th</sup> year and  $45^2 = 2025$**

- Email your design by **Feb. 8** to: [mathleague@augsborg.edu](mailto:mathleague@augsborg.edu)
- Accepted file format: pdf only
- Include your name, grade and school in the email submission.
- Winner will be notified by Feb. 11<sup>th</sup> via email.

Email [mathleague@augsborg.edu](mailto:mathleague@augsborg.edu) with questions

## 5. Summer Math Institute

**SMI: June 22 – June 27, 2025**

Preliminary Summer Math Institute Lineup (subject to minor changes)

		7 <sup>th</sup> through 9 <sup>th</sup> graders	10 <sup>th</sup> through 12 <sup>th</sup> 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	??

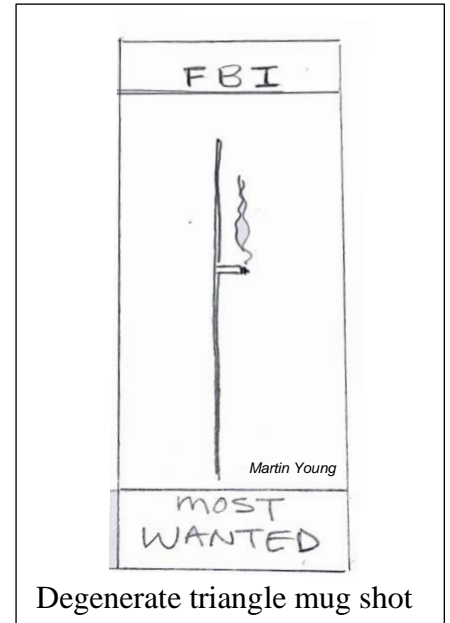
Featured Instructors: [Scott Kim](#), [Annie Perkins](#), [Ben Orlin](#)

## 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](mailto:tomyoungmathman@gmail.com)



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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!



## Problem Corner

an effort to spur conversation

If you'd like to contribute a problem  
or send in a solution, email  
[tomyoungmathman@gmail.com](mailto:tomyoungmathman@gmail.com)

Student solutions  
encouraged!

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## Newsletter Puzzler #47 Asking again...someone please submit!

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 tessellate 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.

