A message from the Executive Director, Tom Young

Time flies! It's practically Thanksgiving!!

Meet One went pretty well, but we had a number of coaches verify answers incorrectly. See the correct **Steps for verifying student scores** later in the newsletter. Scores were up! See Colin Gardner – Springer's column.

Meet Two is Monday November 22nd. ___The time slot sign up will be open Wednesday November 17th at 8 am.___ Please sign up for the same time slot you did for Meet One. A pdf of the problems will be sent out early Friday, November 19th.

We've hired a new Associate Director, Sharin Park. A big welcome to her! See her bio below. Sharin replaces Lisa Olson, who is seeking other avenues for her talents.

RECRUITMENT VIDEO Project

I have a goal of increasing the number of participating schools and I'd like your help. I'd like to compile film footage of students and coaches participating in and talking about Math League. My thought is to edit the footage together and send it to ADs, principals, and superintendents in the state, advertising our great activity. We'd have to get the video to students somehow, also.

So, help by taking iPhone videos, or ask the film students in your school to make Math Team one of their projects. See a more detailed list of ideas for footage later in newsletter. Get Creative! Tell your story! Good luck in Meet two! Go Math Team!

Introducing our new Associate Director, Sharin Park

Hello, my name is Sharin Park and I'm so excited to join the Minnesota Math League as the Associate Director! I began my career in the field of education as a teacher. From there, I shifted into the research field where I primarily focused on research-practice partnerships in the field of education and distributive leadership in schools. Currently, I work as the Director of Parent Programming at Jeremiah Program - a leading national non-profit in the two-generational field. I'm a proud graduate of Rochester Century High School and the University of Minnesota, and have my M.S.Ed from Johns Hopkins University and the University of Pennsylvania.
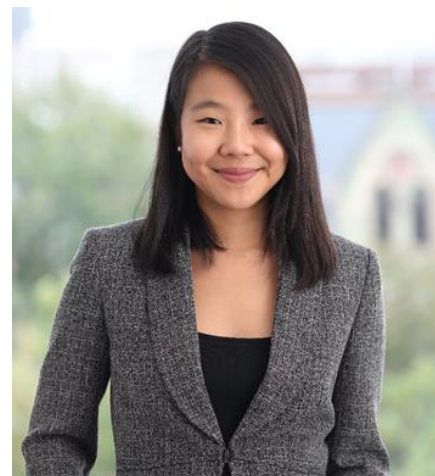
Excited to connect with all of you soon.

A message from Colin Gardner – Springer, Head of Problem Writing Team (HPWT)

Well done on Meet 1! It's great to see students succeed in solving challenging math problems.

We purposely include non-routine problems unlike what's typically covered in math class. You probably won't be able to solve many of them - that's ok! After each Meet, take some time to share approaches and review the official solutions. You never know when you'll see something similar!

Math League problem statements often underline or emphasize key words and phrases, and you may wish to circle important information as you read. Meet 2 will include problems which are easy to answer incorrectly if you miss key information. We want to give credit for all problems you're able to solve, so please read carefully and double-check that your answer meets all requirements!

Speaking of reading carefully, note that Meet 2 Event D is titled "Analytic Geometry of Straight Lines <u>and Circles</u>" (**emphasis added**).

Even though it isn't specifically listed,

you are expected to know that a circle centered at (h,k) with radius r has equation $(x - h)^2 + (y - k)^2 = r^2$.

Finally, a word about the form of answers: **please enter just the integer answer** (without any units or prompt text) into the online scoring system. For instance, if x=5, enter simply <u>5</u>, or if the answer is 12 cm, enter <u>12</u>. The only characters you should use in your answer are 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, and – (for negative answers). Leading zeros should not be included. Typing anything else will result in the system scoring your answer as incorrect, and human intervention will be required to get credit.

Best of luck this month with the AMC 10/12, and then Meet 2. Have fun!

RECRUITMENT VIDEO Project Suggestions
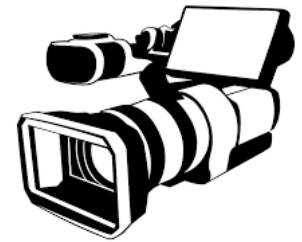
1. Take footage of students solving an individual event. We will make a montage of several students solving problems and superimpose a timer in the corner.
2. Tell your story: Why did you get involved? What do you like about it? How do you deal with success and failure? What do you do for practice?
3. Describe and get footage of your Math League t – shirt if you have one.
4. What are your goals for the future? How will Math League help you attain them?
5. What are your goals for the League for this year?
6. What could be better about the League?

Be Creative!

How to run a meet in 2021 – 2022

Before the Day of the Meet

1. Access scoringmnmathleague.org
2. Enter student names for your team
3. Set up Team Meet by assigning events to each student and picking your team of 8 students
4. Sign up for a time slot
5. Assign students accounts
6. Run copies of tests

The day of the Meet

a. Students should gather at your school at the slotted time

b. You as the coach of the team, need to log in and select recorder for team test

c. Have students sign in, hit Compete, and get ready for first test **but not click the button** to "watch" f or the start.

d. Hand out first test to each student, keeping them silent and instruct them not to look at the test until their online test starts

e. Only once you are ready for students to start, Click Start Individual Events

f. Have students click the button to "watch" for the start. Their test should start shortly. Then they can turn over their sheets

g. Monitor first test (15 minutes, all answers are integers, NO calculators, *official answer is the computer entered answer)*

h collect first test when done, distribute second test. Again keeping them silent and instruct them not to look at the test until their online test starts

i. Only once you are ready for students to start, Click the button in the third box to start round two

j. have students click the button to "watch" for Round two. Their test should start shortly. Then they can turn over their sheets

k. Monitor second test (15 minutes, all answers are integers, NO calculators, *official answer is the computer entered answer*

l.. When second test is done, students can talk

m. gather team of 8 together.

n. Distribute team test. They should not look at it yet. Only one person should be logged into the computer (the recorder)

o. start team test. The recorder should click their button to listen for the start of the team event. The recorder should say when their computer has loaded the team event.
    Only then may any students turn over their problem sheet for the team event.
    (30 minutes all answers are integers, Calculator active,
    official answer is the computer entered answer)

p When team test done, double check the scores from events and from team test.

An opinion about time slots:

While most coaches feel the 3 – 4:30 Monday is the prime time, 4:30 – 6 should be highly sought. In the old model, the bus never got home until 6. This way, you could practice for 1½ hours before taking the tests!

Steps for verifying student scores

A. Once the students are done with their tests, go to Meet Op -> Grade Online Taken Events

B. There you will find a list of your students in each Event. Go to Event A and click on a student name. You should see something like this:
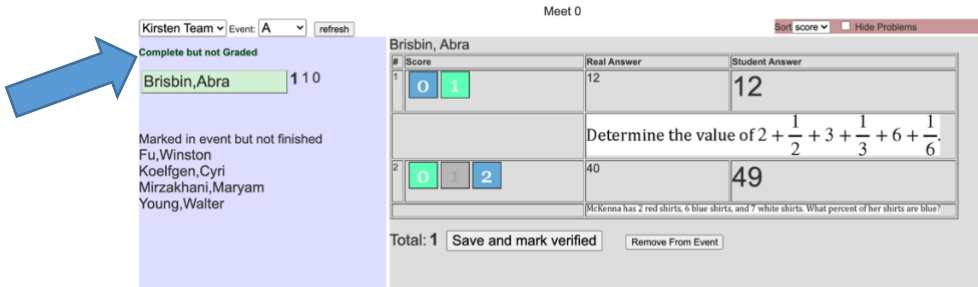

NOTICE IT SAYS "COMPLETE BUT NOT GRADED"

Sometimes students write n = 12 or MINUS SPACE 12 versus MINUS12. The computer will mark them wrong but you have the latitude to override the computer in those instances. If you feel unsure, email us.

C. If you feel the points awarded are correct, click "Save and mark verified."
When you do this, the student's name will be move down the window to **Grade Verified** status
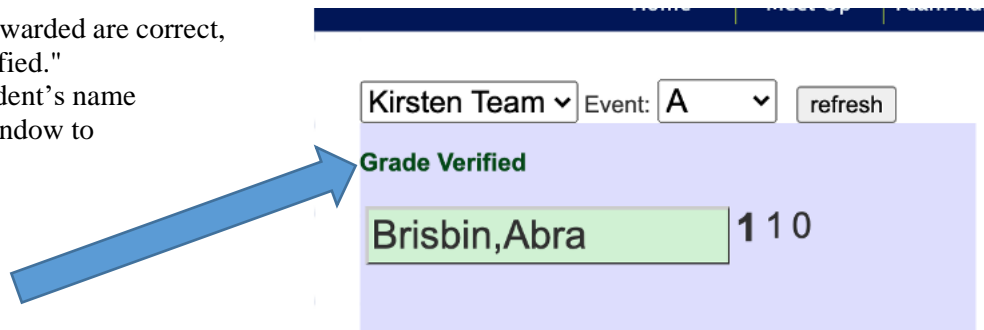
D. You have to verify the student grades for ALL students for ALL events.
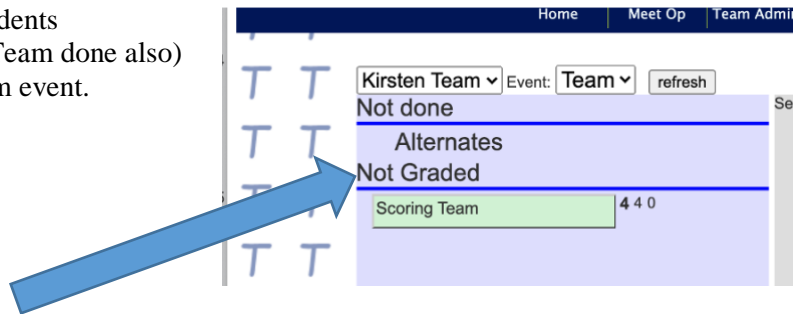
E. When you are done with all the students for a particular event, scroll down to the bottom of the Names window and click Mark Team Done With Event
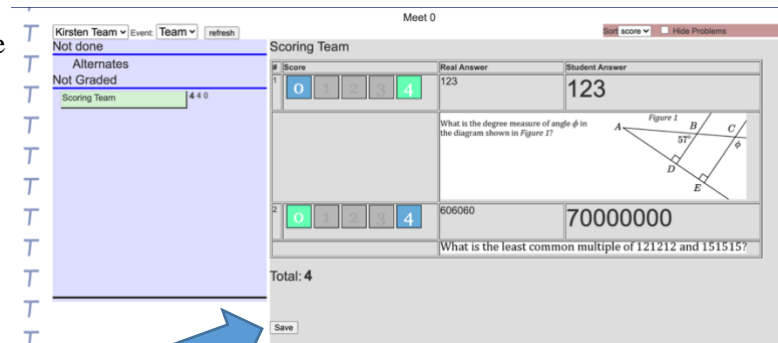
Steps for verifying student scores, continued

F. When you are done with all students in **_all_** individual events (Marking Team done also) then check the answers for the team event.

Notice it says not graded

G. Click Scoring Team, and you will see the answers the team provided. Check to see that they have been given proper credit.

H. CLICK SAVE!!

I. Then go to bottom of Names window and click Mark Team Done With Event

Basically, you have to review and save each student and save each event also

We found that if you just save event and don't review and save each student, the team totals show up but the student totals don't.

The Impact of Math Team

The call went out in the summer of 2020 to Math League alumni to Share Your Story. Stay tuned for another story in the next newsletter.

John Deneen

2020 graduate of South St. Paul HS

Undergraduate: Currently at Harvard
Concentration in Chemistry and Physics
Emphasis: applied/experimental science

Aspiration: Enter the space exploration industry
following graduate school (undecided on degree)

Research :   Aziz Materials Science Group. Research
pertaining to aqueous redox flow batteries,
a novel form of energy storage hopeful in
assisting the transition to renewables.

Interests: Walked on to the Heavyweight Rowing team
Holds board position on the Harvard Undergraduate
Clean Energy Group

The impact of Math Team on my life and learning:

I was a member of the All-State Math (ASM) team in 2019 and 2020. It was during my sophomore year that I was first invited to join ASM, though I didn't join until my junior year, which I truly regret. The single season I spent with ASM was honestly incredible. It was humbling to say the least, but I feel like it completely changed the way I think not only about math and problem solving, but about my place as a learner and future member of academia. I met wonderful people, including several of the most intelligent, caring, and funny individuals I have ever had the pleasure of meeting. I made a new best friend, something I didn't think was possible late in high school, and also several acquaintances I hope to see more of in the future.

The environment of ASM was really something I found striking. It was at the same time welcoming and terrifying, as everyone was supportive, fun, and relatable on a whole other level, but I was doing the hardest math of my life with peers often much better than myself. That was even more true at ARML, a place where to this day I have never felt more out of my league. I think that was really what defined ASM for me: terrifying and humbling, yet constructive. I recognize that others had these same feelings, and I think the outlook that many others are just as clueless as I am will be useful in the future. I would like to thank my fellow athletes, as well as the coaches and faculty of ASM for allowing me such a humbling and prestigious opportunity. I was so looking forward to the 2020 season.

I think ASM was a defining moment of my high school years, and definitely contributed to my success in college admissions. I attend Harvard (online) College studying Chemistry and Physics, and eventually want to attend medical school. Skills and outlooks I learned while on ASM, and high school math team in general, will be integral in my future success. To tell others that it is worth joining the All-State Math team given the opportunity is an understatement. I think everyone should jump at the chance to do so. It very well could change your life.

Free Texts from the Summer Math Institute!!

Dr. Ken Suman, a retired mathematics professor at Winona State University, has been our lead teacher in the 10th – 12th grade SMI for the past two years. In 2018, students at SMI studied Counting Techniques and in 2019, they studied the Theory of Equations.

Dr. Suman wrote texts for the classes, specifically with Math League in mind. These texts are a goldmine of information. Dr. Suman has willingly shared his expertise and suggested that the texts be available to all Math Leaguers.

To that end, the pdfs of the texts can be found at scoringmnmathleague.org under the Coaches Corner tab. Then click on Topic Resources and you'll see the links.

PowerPoints available to help remind you of how to run a meet. They're posted on mnmathleague.org website under For Coaches link

Good luck on the
second Meet,
Monday, November 22nd.

If you run into any issues,
contact us at
mathleague@augsburg.edu
or call Tom Young at
763 568 0118

Newsletter #27 Puzzler:

From the Putnam exam https://kskedlaya.org/putnam-archive/1998.pdf

A right circular cone has base of radius 1 and height 3.
A cube is **inscribed** in the cone so that one face of the cube is contained in the base of the cone.

What is the side-length of the cube?

SOLUTION

Consider the plane containing both the axis of the cone and two opposite vertices of the cube's bottom face. The cross section of the cone and the cube in this plane consists of a rectangle of sides s and s $\sqrt{2}$ inscribed in an isosceles triangle of base 2 and height 3, where s is the side-length of the cube. (The s $\sqrt{2}$ side of the rectangle lies on the base of the triangle.) Similar triangles yield s/3 = (1−s $\sqrt{2}$/2)/1, or s = (9 $\sqrt{2}$−6)/7.

Newsletter #28 Puzzler:

From the Putnam exam https://kskedlaya.org/putnam-archive/1997.pdf

A rectangle, HOMF, has sides HO = 11 and OM = 5. A triangle ABC has H as the intersection of the altitudes, O the center of the circumscribed circle, M the midpoint of BC, and F the foot of the altitude from A. What is the length of BC?