



A message from the Executive Director, Tom Young

Congratulations to all the teams that participated at the State Tournament! It was a great day for mathematics in the great State of Minnesota!

The Math Bowl *was very suspenseful*. Ten students made it to the stage and after 8 questions, three students were tied with 6 questions correct. After congratulating the 7 that had to leave the stage, emcee Mike Reiners proceeded with the tie breaker questions. On questions 9 through 13, the 3 contestants either all got it right, or all got it wrong! It was still tied! Then on question 14, one of the students missed. It was down to 2, and it was time to settle the Math Bowl once and for all. The 15th question was not timed – it was open ended. The first person to submit a correct answer would win! **Alexander Zhu**, a 10th grader from Rochester Century answered the question in 20 seconds and, according to Mike, had the correct answer written down in 6 seconds, but checked his answer! Alexander accepted his trophy to the applause of an appreciative crowd.

The video of the Math Bowl can be found on our Facebook page.

Team winners were

Alpha Class:

- 1st place: **Century High School, Rochester**
- 2nd place: **Wayzata High School**
- 3rd place: **Mounds View High School**
- 4th place: **Eden Prairie High School**
- 5th place: **Edina High School**

Beta Class:

- 1st place: **St. John's Preparatory School**
- 2nd place: **Minnehaha Academy**
- 3rd place: **Mahtomedi High School**

Gamma Class:

- 1st place: **Marshall High School**
- 2nd place: **Hermantown High School**

Quantum Leap Award:

Highland Park High School

Look later in the newsletter for information regarding the **Summer Coaches Conference** and the **Summer Math Institute**. The former is for you; the latter is for your students. I encourage you to attend the coaches conference, and I encourage you to encourage your students to attend the Summer Math Institute!

Thanks for all you do for the cause of mathematics and the MN State HS Math League!

A message from Tom Kilkelly, Head of the Problem Writing Team

It is with a bit of sadness and nostalgia that I say goodbye to Andy Niedermaier, one of our problem writers. His family responsibilities are now requiring more of his time. He has been with the MSHSML for the past 22 years.

Andy first joined as a freshman on the Benilde-St. Margaret's math team in 1996. He was top scorer in his division that year and was selected for the Minnesota All-Star Math Team. That year Minnesota Gold was the best team in the nation at the ARML Competition! Andy was a leader in the league for the next three years and was Math Bowl Champ his senior year. He went off to Harvey Mudd College and earned a degree in mathematics.

In 2007 Andy became a member of the league's Problem Writing Team and has submitted fifty problems each year for our competitions. In 2008 he became one of the ARML coaches, traveling back to Minnesota each year to help prepare our team. Andy is noted for writing the annual FARML (fake ARML). His problem proposals were often unique, clever, and challenging.

He will be missed!!

Summer Mathematics Institute 2018 Residential Camps

JUNE 24 - 29



7th – 9th graders: Advanced Problem Solving Strategies

Teachers: Stephanie Hegman, Inver Hills Community College

10th – 12th graders: Counting techniques in the AMC 10, AMC 12, and AIME

**Teachers: Ken Suman, Winona State University
Carraig Hegi, North St. Paul HS**

**Application due April 15th (or until capacity is reached)
and is available on our website at**

http://mnmathleague.org/?page_id=444

July 12 and 13, 2018

Summer Coaches Conference at Augsburg



Thursday July 12

Geometry in the AMC 10, AMC 12, and AIME

Presented by Steve Dunbar

Steve Dunbar is a University of Nebraska Lincoln Emeritus Professor. He is interested in issues of mathematical education at the high school and collegiate level. He is the Director of the American Mathematics Competitions program of the Mathematical Association of America. MAA sponsors the AMC 8, AMC 10, AMC 12, AIME, and USAMO which lead to the selection and training of the USA delegation to the annual International Mathematical Olympiad.

Friday, July 13

MN State HS Mathematics League Concerns, Tips for new (and experienced) coaches, and Topics from Geometry

Look for registration information to be coming soon

follow us on Facebook "Minnesota State High School
Mathematics League" @MNSHSML and
Twitter @MNHSMathLeague

Problem Corner

an effort to spur conversation

If you'd like to contribute a problem or send in a solution, email tyoung@district16.org

Student solutions encouraged!

A solution to the problem from Newsletter 5

How many 4 digit numbers are there such that the thousands digit is equal to the sum of the other 3 digits?

SOLUTION: **219.** **I found this by running the java program** **Can you submit another way?**

```
int counter = 0;

for (int i=1;i<10; i++){
    for (int j=0;j<10; j++){
        for (int k=0;k<10; k++){
            for (int m=0;m<10; m++){

                if (j+k+m == i) {counter++;}

            }
        }
    }
}

System.out.println ("the number of times the thousands digit
is equal to the sum of the other digits is " + counter);
```

New Problem: <https://math.stackexchange.com/questions/658449/interesting-geometry-problem-square-and-two-circles>

Given a square with center A, and two circles as drawn, what is the area of the square?

