



Points & Angles

Newsletter of the Metropolitan Mathematics Club of Chicago
Volume XLV No. 8 June 2016

2016 - 2017 MMC Program Info

Mark Your Calendars For September 23, 2016
Our Speaker Will Be Matt Larson, NCTM President

MMC will be kicking off the 2016-2017 school year with NCTM President Matt Larson at Fountain Blue on September 23rd. Dates below are still tentative for later talks but other speakers for the season include the following:

- David Ginsburg from Ginsburg Educational Coaching and Consulting on October 21st, 2016.
- Dr. Jeffrey Bergen from DePaul University on December 12th, 2016
- Maryjoy Heineman from Evanston Township High School on January 20th, 2017.
- Dr. Nicole Enzinger from George Fox University on March 3rd, 2017
- Dr. Hyman Bass from University of Michigan on May 5th, 2017.

It should be a great season! Be on the lookout for future information.

Points From The Interior

BY PATRICIA TRAFTON

Wow! Where has the time gone? By the time you receive this newsletter, the Metropolitan Mathematics Club Board will have met and concluded another school year for MMC. It has been my honor to serve as President for this year. MMC continued to offer outstanding professional development and social opportunities with the seven dinners, the summer workshops, and the Saturday Conference of Workshops. And for the first time, our members had the opportunity to participate in a service project at the Greater Chicago Food Depository.

Our events would not have been so great without the efforts of many people. First, I'd like to thank our wonderful dinner speakers: Nora Ramirez, Edna Bazik, Rochelle Gutierrez, Dale Seymour, Steve Viktora, John McConnell, and Zal Usiskin. Our Saturday Conference of Workshop instructors were John Benson, Sheila Hardin, Ray Klein, Nancy Powell, Steve Viktora, and Mary Wiltjer. Space doesn't allow for a list of everyone who presented at the Conference of Workshops, but a sincere thank you goes out to all of them.

Special thanks goes to all the Board members and officers including John Diehl, Carrie Fraher, Lynn Bond, Carol Nenne, Tom Bond, Peter DeCraene, Michelle Eggerding, Sheila Hardin, Laura Kaplan, John McConnell, Matt Moran, Nicolette Norris, John O'Malley, Nancy Powell, Mary Wiltjer, and Paul Christmas. A special thanks to Michelle Eggerding and John Diehl who have finished their terms on the Board, with John finishing his year as Past President. Welcome to the Board Karen Lopez, Jeff Harding, Matt Moran, Rose Sterr, and Mary Wiltjer who will begin their new term this month.

Finally, a big thank you to all of our members for your participation. Dinners, workshops, conferences, and a service project are only successful because of the people who attend them. MMC is a wonderful organization for professional development as well as fun and fellowship. I am proud to be a member of the Metropolitan Mathematics Club of Chicago and to have had the honor of serving you as President. Enjoy your final days of the school year, and mark your calendars now for the exciting speakers that Carrie Fraher has lined up for the 2016-17 school year. Have a wonderful summer break!

May Talk Summary

BY TOM BOND

Zal Usiskin treated a packed house at MMC to an entertaining and informative talk on the "Big Ten" difficult mathematical ideas for high school students to grasp. As usual, Zal sprinkled his talk with impromptu references to events during the evening, particularly the scholarship recipients and their parents. One obvious omission was an update to his probability calculation of the Cub's World Series chances from his presentation 2 years ago. We'll have to wait for 2 more years, apparently.

Zal began by pointing out that the "Big Ten" really means different things. In college football, the big ten is really fourteen, although this is not a mathematical problem. Even so, there was only time for ten, not fourteen, that evening.

#1 Imaginary numbers. Zal pointed out that they are not imaginary at all. The mathematician Descartes is responsible since he did not regard them as useful. The semantics of "real" and "imaginary numbers causes students problems. Add in the concept of

May Talk Summary Continued

“complex” numbers and students get even more confused. What helps the two concepts make sense is that real numbers allow us to work with points on the number line, while complex numbers allow us to work with points on a plane.

#2 0° is undefined. This concept is difficult for students to grasp, because not even mathematicians agree on the concept. Zal related several sources that conflicted on the whether 0° is undefined.

#3 Chunking: Thinking of an expression as a single object. The problem here is that we tend to separate items (parse) to evaluate them, but then never put them back together into one whole for understanding.

#4 Glide reflections are single transformations. Zal laid the misunderstandings of this concept at the feet of Common Core. The problem is that we never show the students that a sequence of transformations relating congruent figures is actually a single transformation.

#5 Slope. The problem with student understanding of slope is that we use terms and symbols that are not completely understood by students. If the students do not understand the terms and symbols, how can they understand the concept? Another problem is how the Common Core uses proportions to define and promote understanding of slope, which is not needed. Zal suggested that a better way is to investigate some data over time. The example he used was the population of a city over time.

#6 Powers with non-integer exponents. Zal suggested using accurate language when dealing with powers. Exponentiation, base, and power are terms that need to be correctly understood and defined to understand the overall concept. Calculators are a contributor to the problem because they allow the students to do the calculations without really understanding the meaning of the process. As with slope, actual applications aid in understanding the concept.

#7 Logarithms. This concept starts out being difficult to grasp because there is no meaning for the word “logarithm” outside of mathematics to aid in understanding. The unknown nature of the word causes fear in the minds of students. The equivalence of exponentiation and logarithms is not a help as many students still get lost. The key seems to be simple statement: Logarithms are exponents. A good way to communicate this concept is with tables of powers of 10. Students will quickly see that multiplication of the numbers is actually addition of the powers, or logarithms.

#8 Difficulties with distributivity. Zal identified this as the one most associated with student errors. Understanding of this concept is not aided by applications or history, as many of the above concepts. Students need to carefully read the mathematics that have been written. Teachers aggravate the problem by using hidden operations when writing distributive problems. We should be using multiplication and division signs with the parenthesis to help the students understand what is going on.

#9 Proof. This is the most important process in all of mathematics. Every proof is a conditional statement, involving a given (if) and a conclusion (then). Many statements we use in proofs do not look conditional, but in reality all of them are. Students often do not recognize that they have been doing proof whenever they solve an algebraic equation. Another activity that helps students is to give them a figure and ask what they can deduce about the figure.

#10 Indirect Proof. Indirect proof is often viewed as more difficult than direct proof, but in reality even toddlers can understand the concept of something missing. Sudoku puzzles use indirect proof in their solution. Zal was critical of the Common Core for omitting indirect proof and ignoring any mathematical reasoning. He feels the Common Core has completely missed the point in regard to proof.

Zal provided us all with much to ponder and think about. A quick summary does not convey all of his thoughts. For more information, contact him at z-usiskin@uchicago.edu for his complete powerpoint.

MMC Scholarship Winners

By LAURA KAPLAN

The scholarship committee was able to choose among outstanding candidates for the MMC scholarship, which is awarded to a high school senior who will pursue a career in mathematics education. In addition to the MMC Scholarship, the Filliman Family was again generous enough to offer two scholarships in memory of Dennis and Paula Filliman, longtime active members of MMC.

MMC Scholarship:

Gayoung Kim, Glenbrook South High School, sponsored by Mary Wiltjer

Gayoung will be attending the University of Illinois Urbana-Champaign where she will major in mathematics. She really liked her geometry class, and the main reason is because she likes how geometry deals with pictures which helps her to understand what is going on. Gayoung is planning to teach high school. What she is looking forward to after becoming a teacher is the pride of guiding students to learn what they want to do in the future and to realize who they are.

Filliman Scholarships:

Scott Kiefer, Oak Park River Forest High School, sponsored by Joyce Gajda

Scott will be attending Northwestern University and will study secondary education with a concentration in mathematics. He had a hard time settling on one favorite class, but decided on pre-calculus and Calculus BC. Scott hopes to teach high school where looks forward to being able to engage a classroom and show his class that math does not have to be feared.

Sara Schwarz, Plainfield Central High School, sponsored by Tom Bond

Sara will be attending University of Illinois at Chicago, where she will major in Secondary Education in Mathematics. Her favorite math class in high school was Calculus BC. Sara hope to teach high school juniors or seniors when she graduates, where she will look forward to being able to help students learn and understand math and to help them apply it to more than just tests.

MMC Service Project Photo



Picture from the MMC service project with (from left to right): Surge, Mary, Sheila, Carol, John, Pat, and Colleen.

Affiliate Report

By JOHN McCONNELL

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

Are you renewing your NCTM membership over the summer? If you renew online at NCTM.org, you have the opportunity to identify MMC as your affiliate organization. NCTM will direct a small rebate to MMC.

NCTM Regional Meetings are scheduled for this fall in Phoenix, October 26–28, and in Philadelphia, October 31–November 2.

An new type of NCTM conference in November addresses one of the most pressing issues for the classroom teacher, Engaging the Struggling Learner. The conference offers three pathways:

- Response to Intervention
- Supporting productive struggle
- Motivating the struggling learner.

Schools and districts are encouraged to send teams of teachers who will have a variety of choices of hands-on, interactive, and cooperative learning experiences. Check out the description at <http://www.nctm.org/innov8/>. It appears that this first conference in the INNOV8 sequence will model best practices. A feature worth checking out is the online “voting” that potential participants can use to shape the issues and learning environment for the conference.

Illinois Council of Teachers of Mathematics

The ICTM Annual Meeting returns to the Peoria Civic Center October 7–8. The Illinois Science Teachers Association will conduct its annual meeting simultaneously. There will be plenty of great ideas on STEM to be shared between the two organizations.

ICTM annual awards recognize contributions to the organization and to mathematics teaching and learning in Illinois. The recently released list honors many who are well known as MMC officers, board members, committee members, dinner speakers, and/or conference presenters. They include

- Steve Viktora for the Distinguished Life Achievement in Mathematics Award
- Richard Rukin for the Fred Flener Award: Engaging Students in Mathematics Beyond the Classroom
- Jennette S. Winters for the Lee Yunker Mathematics Leadership Award
- Bill Roloff for the T.E. Rine Secondary Mathematics Teaching Award
- Andy Isaacs for the Max Beberman Mathematics Educator Award
- Ben Hyman for the Promising New Teacher Award.

Upcoming Workshop

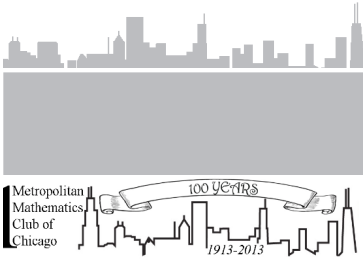
Build Your Own TI-Nspire CX CAS Calculator Workshop: 1 to 3 days

June 14th to 16th, 2016 - Times and dates vary

At Highland Park HS - Cost is \$40 per day or \$100 for all 3 days (including lunch).

You must sign-up in advance by Friday, June 3rd to attend a variety of TI-Nspire calculator sessions. **PLEASE GO TO THE REVTRAK LINK BELOW TO REGISTER FOR THESE WORKSHOPS.** You will need to pay in advance in order to complete your registration process with a generated receipt/confirmation of your registered sessions. Any questions, please contact Robin Gapinski at 224-765-2224 or rgapinski@dist113.org

RevTrak Registration Link: <https://dist113.revtrak.net/tek9.asp?pg=products&grp=341>



Officers

Patricia Trafton, President
 Carrie Fraher, President-Elect
 John Diehl, Past President
 Lynn Bond, Secretary
 Carol Nenne, Treasurer

Directors

Lynn Bond (2015–2018)
 Plainfield Central H.S., Plainfield

Tom Bond (2015–2018)
 Plainfield Central H.S., Plainfield

Peter DeCraene (2014–2017)
 Evanston Township H.S. Evanston

John Diehl (ex officio 2013–2016)
 Hinsdale Central H.S. (retired), Hinsdale

Michelle Eggerding (2013–2016)
 Schaumburg H.S., Schaumburg

Carrie Fraher (2015–2018)
 Glenbrook South H.S., Glenview

Sheila Hardin (2014–2017)
 Oak Park & River Forest H.S., Oak Park

Laura Kaplan (2014–2017)
 Chicago Academy for the Arts, Chicago

John McConnell (2014–2017)
 Glenbrook South H.S. (retired), Glenview

Matthew Moran (2013–2016)
 Whitney M. Young Magnet H.S., Chicago

Nicolette Norris (2013–2016)
 Chicago Vocational Academy, Chicago

John O’Malley (2014–2017)
 Glenbrook South H.S., Glenview

Nancy Powell (2015–2018)
 Illinois Math and Science Academy, Aurora

Patricia Trafton (2015–2018)
 Lincoln M.S., Schiller Park

Mary Wiltjer (2013–2016)
 Glenbrook South H.S., Glenview

Officials

Board Chair	Sheila Hardin
Community Relations and Development	Michelle Eggerding
Conference Co-Chairs	Carol Nenne Mary Wiltjer
Finance Committee Chair	Tom Bond
Historian	Paul Christmas
Membership Coordinator	Mary Wiltjer
NCTM/ICTM Affiliate Representative	John McConnell
Points & Angles Editor	John O’Malley
Publicity and Posters	Paul Christmas
Scholarship Chair	Laura Kaplan
Social Media Chair	Laura Kaplan
Webmaster	Peter DeCraene

The MMC Conference of Workshops is back in 2017!

To repeat the excellence, WE NEED YOU TO PRESENT!!

The conference will be on Saturday, January 28th at Evanston Township High School.

- Workshop format: 75-minute sessions where participants are actively involved.
- Looking for speakers from all grades K – 14.
- New speakers are welcome.
- Co-presentations are encouraged.
- Various topics needed.
- Encourage other potential speakers to fill out the online speaker form.
- We'll have coffee, carbohydrates, and calculators. What else could a workshop need? You!!
- Have questions? Contact Mary or Carol at mwiltjer@glenbrook225.org or cnenne@comcast.net.
- Fill out the speaker form online at www.mmcchicago.org between July 1st and September 30th.

Turn in your proposal at mmcchicago.org starting July 1st!!

MMC Board Thank You Notes

MMC would like to thank Texas Instruments (TI) for their continued support. They were generous enough to supply the meals for our scholarship winners and their families. In addition, they also provided each winner with a calculator and we are lucky to have them to support not only our organization, but to aspiring young men and women who are entering into the profession as well. A shout-out also goes out to Ron Thomas, our TI representative.

MMC must also thank Fountain Blue for another wonderful year. They were generous to provide appetizer sandwiches for our last dinner meeting of the year.

Last, but certainly not least, the board would like to thank anyone and everyone who has been involved in the organization in one way or another. Whether it was assisting in some way or coming to a dinner meeting, we know that we could not do it without you.

MMC Election Results

A thank you goes out to everyone involved in the 2016 MMC Election. We appreciate everyone who voted, helped count ballots, or ran for a position. Here are the results:

Matt Moran was elected President.

Jeff Harding, Karen Lopez, Nicolette Norris, Rose Sterr, and Mary Wiltjer were elected as Directors.

NAME		PREFERRED CONTACT Check one: <input type="checkbox"/> Home <input type="checkbox"/> Work	
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FORM USE Check one:		MEMBERSHIP COST \$	
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* The student and 1 st -year teacher memberships are only available as electronic-only.		SPEAKER FUND \$	
		TOTAL AMOUNT OF CHECK \$	

Make check payable to *MMC*

MMC Membership and Change of Address Form

Mail completed form and check to:

MMC
 7339 W. Ibsen St.
 Chicago, IL 60631

Upcoming Events

June 14-16 Highland Park MEECAS + TI-Nspire CAS Workshop

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2016 - 2017 MMC Speakers & Dates

Fri., Sept 23	Matt Larson
Fri., Oct 21	David Ginsburg
Fri., Dec 2	Jeffrey Bergen
Fri., Jan 20	Maryjoy Heineman
Fri., Mar 3	Nicole Enzinger
Fri., May 5	Hyman Bass

Send upcoming event items to jomalley@glenbrook225.org no later than the date of the MMC dinner meeting preceding the issue in which the item should appear. All items are subject to editing.

Your membership renewal date appears in the upper right corner of the label.

MAILING LABEL

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