

Points & Angles

Newsletter of the Metropolitan Mathematics Club of Chicago
Volume XLVI No. 6, February 2012

Raising the Bar: Effecting Change in Students' Mathematical Beliefs

Keith A. Nabb
Moraine Valley Community College

BY ISMAEL ZAMORA

Students' beliefs about mathematics are documented in the literature as falling well short of ideal. In his presentation, Keith Nabb will review some of this literature and then tell us about some interventions that have the potential to bring about change, such as assigning nonstandard, conceptually-rich mathematical tasks, embracing student suggestions and feedback in lecture and discussion formats, and using inquiry-oriented instruction. He will share students' solutions and discussion ideas in the context of first- and second-semester calculus as well as recent successes with Inquiry-Oriented Differential Equations, through the lens of positive change in students' epistemologies.

Keith A. Nabb teaches in the department of Mathematics at Moraine Valley Community College in Palos Hills, Illinois. His name may look familiar from his article in *Mathematics Teacher*, "A Close Encounter with Infinity: Inventing New Mathematics" (December 2010, Volume 104, Issue 5, page 373). He is also a graduate student in the department of Math & Science Education at the Illinois Institute of Technology. His research interests include cognitive science (students' mathematical thinking and reasoning) and the use of technology in mathematical learning.

Reserve your space today for what promises to be a great night. Bring your sweetheart and celebrate an early Valentine's day with MMC.



From I-90 & Southbound I-294: Exit at I-190 West to O'Hare; Exit onto North Mannheim Rd.; Take Mannheim Rd. North 2.25 miles.

From Northbound I-294: Exit at West Touhy Ave.; Take Touhy Ave. to Mannheim Rd.; Turn right on Mannheim Rd.

Public Transit: Take the CTA Blue Line to the Rosemont Bus Terminal; Take Pace Bus #223 to Touhy Ave. & Lee Rd.; Walk East on Touhy to Mannheim Rd.

Friday, February 10, 2012

5:30 PM Doors Open, 6:00 PM Social Hour,
7:00 PM Dinner and Talk

Fountain Blue Banquets & Convention Center

2300 Mannheim Rd., Des Plaines
(847) 298-3636

\$34 for Members, \$39 for Nonmembers

Reserve by Noon, Monday, Feb. 6

Online at [HTTP://MMCCHICAGO.ORG/](http://mmcchicago.org/) OR (630) 907-5023, day or night, leave a voicemail.

Points from the Interior

BY ISMAEL ZAMORA

My mathematical influences are not famous or well-known names. They are people who have touched my life in some way. They did it without knowing it was happening and without an intention to do so. These educators inspired me in ways that do not win awards or inspire movies. These influential people went to work every day and did what they loved—they taught. It is this same drive that gets us all out of bed in the morning, this drive that sends us across the county to listen to a new idea. It is this love of education that makes us go into school on the weekend and work on a new ways to teach an old topic. We love teaching, we love mathematics.

I would be remiss if I didn't thank the one person who is responsible for who I am today. He is not an educator in the sense of being employed to teach. He worked with his back and his hands and he came home tired from physical exertion. He put 7 kids through college on the wages of a steel worker who never made more than \$15 hour. He was a master

of numbers, even though he never finished middle school. He was a great financier, even though he never had money to spare. He was an educator who taught through example and led without ever looking down. He was my father, Felix Zamora.

My dad taught me the importance of mathematics. He taught me that mathematics is the way the world is set up and organized. He taught me that mathematics has a real impact on how you live life. It was the one skill he insisted all his children master. He did all this with only a 6th grade education. He never learned algebra and was fascinated when I would show him solutions to math puzzles he would present me. He did not tolerate bad grades in school—even with his limited English proficiency he knew what a bad grade looked like. The one place he would not allow us to slip is math. If he saw a poor grade in math he would take out his Admiral Steel tablet (this was a table of paper with a red grid on it that was used by his company) and write math problems on it. These problems would often include 9- and 10-digit addition, subtraction, multiplication and even division.

I often heard my father say, "Get a job that requires you to use your mind and not one that requires you to use your back."



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MMC Scholarship

The Metropolitan Mathematics Club of Chicago is offering a \$1,500 scholarship for a high school senior who will pursue a career in the teaching of mathematics. In addition, up to two Filliman Scholarships may also be awarded for the same amount (funded by a gift from the Filliman estate). The selected students, their parents and their sponsoring teachers will be invited to the April 20th MMC dinner meeting at which time the scholarship recipients will be honored.

A selection committee of MMC members appointed by the Executive Board will determine the scholarship awards. To be eligible, an applicant must submit the application, have an official transcript sent, and request a letter of recommendation from a member of the MMC such that all of the materials are received by March 9, 2012. The committee will establish its own guidelines for evaluating applications, and will make a recommendation to the Board as to the awarding of the scholarship. No member of the selection committee may nominate nor recommend a candidate.

** Up to 3 awards are possible based on candidate qualifications. The organization reserves the right to award fewer scholarships if these are not met.

The scholarship application form, along with the requirements, appeared as an insert in the December issue of *Points & Angles*, as well as on the web site.

He knew his basics and knew them well. He could find an error in a computation in second. We were not allowed to finish until they were all correct. He gave me the gift of numbers. His homework was far beyond anything any textbook could dream up. I learned because I was the 4th child through this system and I knew what was coming.

I lost my dad in October after he battled Parkinson's and numerous strokes. I am not writing this as a way to thank him for all he did. I made sure I thanked him every day after I graduated from college. I was lucky enough to see the pride in his face when he would introduce me to his friends. He would say, "I would like you to meet my son, *El Maestro de Matematicas*," which literally translates to "Master of Mathematics." I made sure my father knew he was the true master of mathematics and the reason I am who I am. As a child I often heard him say, "Get a job that requires you to use your mind and not one that requires you to use your back." I will thank him every day of my life for inspiring me and opening my eye to my love of numbers.

MMC Presents Ignite

Friday, May 11, 2012

Doors will open at 5:30 p.m.
Presentations will begin at 7:00 p.m.
VFW Hall, Park Ridge Post #3579
10 W Higgins Rd., Park Ridge
There will be pizza to eat and a cash bar.
\$15 for members and \$20 for non-members.

Speakers will include: Angela Andrews, John Benson, Peter DeCraene, Isaac Greenspan, Sheila Hardin, Ken Indeck, Doug O’Roark, Nancy Powell, Steve Viktora, Noreen Winningham

What is Ignite? Presented throughout the world, Ignite is fast-paced, fun, thought-provoking, social, local, global, and more. It’s a high-energy program of 5-minute talks by people who have ideas—and the guts to get on stage and share them.

MMC’s Ignite event will include 10 great local presenters who have a lot of great ideas on education, mathematics, and mathematics education.

It will be lively, refreshing, and blink-and-you’ll-miss-it quick. (So don’t miss it!)

MMC Ignite speakers share whatever they want in five-minute presentations using 20 slides that auto-forward every 15 seconds, ready or not. Ten speakers will share their fresh ideas in mathematics education to entertain and educate the audience on topics about which they are passionate.

Ignite is a force for raising the collective IQ and building connections. And, via streaming and archived videos of local talks, Ignites share their knowledge and passion with the world. The first Ignite event took place in Seattle in 2006, and since then the event has become an international phenomenon. For more info about Ignite, visit <http://ignite.oreilly.com>. If you’d like to see some mathematics education Ignites, go to <http://www.keypress.com/x25933.xml> to see Ignites presented by Key Press in the last few years.

More Upcoming Events

T³ International Conference, Chicago, March 2–4. <http://education.ti.com/calculators/pd/US/International/2012/>

2012 NCTM Annual Meeting and Exposition, Philadelphia, PA, April 25–28. <http://www.nctm.org/philly>



USACAS 7 will be a conference within the T³ International Conference in Chicago, March 2–4, 2012.

Look for a full day of sessions on “CAS as a Learning Tool” on Saturday, March 3.

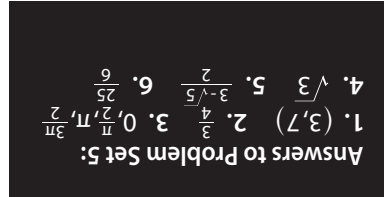
For questions, contact Ilene Hamilton at ihamilton@d125.org or Natalie Jakucyn at njakucyn@glenbrook225.org

More information available at
USACAS.ORG
OR EDUCATION.TI.COM

MMC Problem Set 6

By RICHARD RUKIN

- Find all positive integers n such that $n^4 - 3n^2 + 9$ is a positive prime number.
- At 6:00 A.M. one day, Edmund began a climb up Mt. Math. Two hours into his climb, he was overtaken by Norgay. As Norgay passed, he informed Edmund that he was trying to set a record for ascending and descending the mountain. At 10:00 A.M., Norgay passed Edmund on Norgay's way down, indicating that he had not stopped to rest, even at the top. Edmund finally reached the top at noon. Assuming each of them had gone at a constant rate, both ascending and descending, at what time did Norgay reach the top of Mt. Math?
- Find all ordered triples (x, y, z) with $0 < x < y < z$ such that $3(x + \frac{1}{x}) = 4(y + \frac{1}{y}) = 5(z + \frac{1}{z})$ and $xy + yz + xz = 1$.
- The product of six prime positive integers is a six-digit even number, all of whose digits are the same. Find the six-digit number.
- If $1 \cdot 2000 + 2 \cdot 1999 + 3 \cdot 1998 + \dots + 1999 \cdot 2 + 2000 \cdot 1 = \binom{n}{3}$, find n .



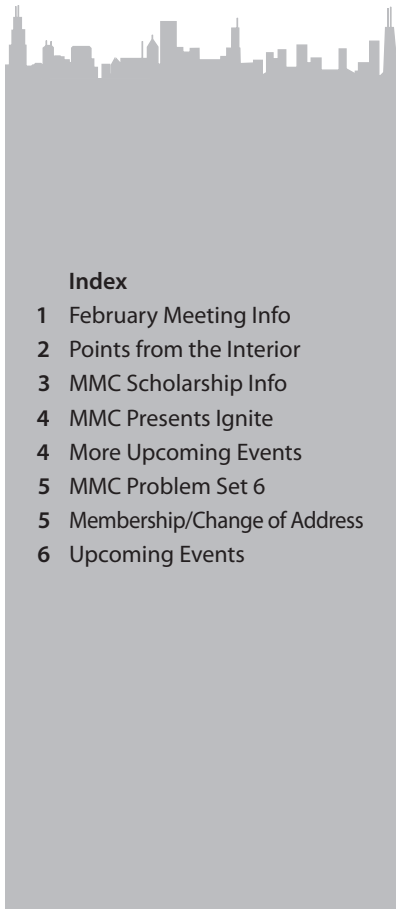
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CITY	STATE	ZIP	
HOME PHONE	HOME E-MAIL		
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		SCHOLARSHIP FUND \$	
		SPEAKER FUND \$	
		TOTAL AMOUNT OF CHECK \$	

Make check payable to **MMC**

MMC Membership and Change of Address Form

Mail completed form and check to:

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 7339 W. Ibsen St.
 Chicago, IL 60631



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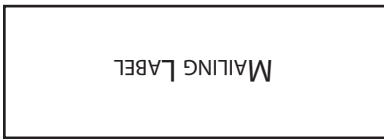
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Upcoming Events

Fri., Feb. 10	Keith Nabb	Raising the Bar: Effecting Change in Students' Mathematical Beliefs
Fri., Mar. 9	Steve Arnold	Technology and Mathematics: Impact upon Practice, Curriculum and Pedagogy
Fri., Apr. 20	Zalman Usiskin	Mathematical Understanding in the Common Core Standards
Fri. May 11	<i>(see page 4)</i>	MMC Presents Ignite

Send upcoming event items to ilg@chicagomath.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.



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