

POINTS AND ANGLES

Newsletter of the Metropolitan
Mathematics Club of Chicago



Volume XXXIX

September 2004

No. 1

Making Math Work for All Students

Dr. Lee Stiff

BY JOHN DIEHL

MMC is pleased to have Dr. Lee Stiff join us for our September dinner. Our theme for the year is Equity, and his talk will certainly engage us in this topic. Dr. Stiff will discuss perspectives on how teachers and students can work together to make math more attainable for all students.

Dr. Stiff's expertise comes from his many experiences as a Mathematics educator. He is currently a Professor of Mathematics Education and Associate Member of the Mathematics Department at North Carolina State University. He has also taught mathematics at the middle and high school levels. He has given many scholarly presentations to mathematics teachers around the world, including Japan, China, Mexico, and Canada. Dr. Stiff was a Fulbright Scholar to the Department of Mathematics of the University of Ghana, West Africa, during the 1995-1996 academic year. In 1992, he received the W. W. Rankin Memorial Award for Excellence in Mathematics Education.

Dr. Stiff served as President of the National Council of Teachers of Mathematics (NCTM) (2000-2002), a past member of: the NCTM Board of Directors, the Benjamin Banneker Association Board of Directors, the NCTM Algebra Task Force, and the Mathematical Sciences Education Board. Dr. Stiff has served on the editorial panels of the Mathematics Teacher and the Journal for Research in Mathematics Education, and was the Issue Editor of the 1999 NCTM Yearbook: Developing Mathematical Reasoning, K-12. He is a co-author of elementary, middle grades, and high school textbooks in mathematics published by Houghton Mifflin Company and McDougal Littell.

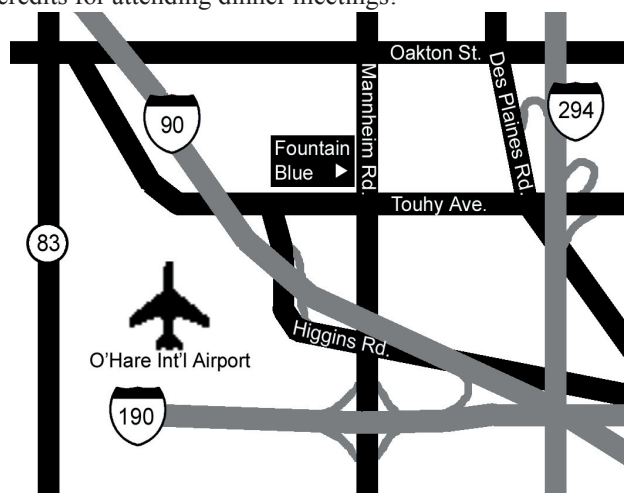
We are very pleased to have Dr. Stiff as the speaker for our first dinner of the 2004-2005 school year. Be sure to take advantage of this wonderful opportunity for an excellent presentation, a fine meal, and the chance to renew acquaintances with your colleagues.

REMEMBER!! You can earn CPDU credits for attending dinner meetings!

Date: Friday, September 17, 2004
Time: 5:30 p.m. Doors Open
6:00 p.m. Social Hour
7:00 p.m. Dinner and Talk
Place: Fountain Blue Banquets &
Convention Center
2300 Mannheim Rd.
Des Plaines, IL
(847) 298-3636
Cost: Members \$31
Nonmembers \$37

RESERVATION DEADLINE
Monday, September 13, by noon,
please!

To RESERVE:
Call Lee Ann Swanson at
(630) 570-8421 or
email: lswanson@hinsdale86.org
Requests for special meals must be made
in advance.



From Southbound I-294 &
Eastbound I-290:
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; Exit at
Touhy Ave. & Lee Rd.; Walk East on Touhy
to Mannheim Rd.

Future Meetings:
September 17

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Points from the Interior

BY GWENN ZIMMERMANN

Welcome back! I hope your summer was relaxing, reflective, and rejuvenating (the 3 R's for summer). As we get back into the groove of a new school year, we are also thinking about personal goals for the year. And then there are the goals that are set for us by others. Case in point is the No Child Left Behind legislation. Although many may argue the mandates of NCLB, few can argue the intent of academic success for ALL students.

For this year's program, we have chosen a theme of "Equity in the Mathematics Classroom." Not coincidentally, Equity is the first of the six principles in NCTM's Principles and Standards for School Mathematics (2000). The Equity Principle states, "Excellence in mathematics education requires equity – high expectations and strong support for all students." This Principle goes beyond just saying that all students should be taking mathematics. It states that all students should be given opportunities for

a quality mathematics education with high expectations for all students. The Equity Principle demands that, as teachers, we recognize the diversity of learners within our classrooms. Not all learners learn in the same manner; some are more visual, others more sequential, and so on. As professionals with a passion for what we do and who we teach, we must learn how to differentiate instruction so we may celebrate the wonderful diversity in each of our classrooms.

The "diverse" program we have organized this year provides the opportunity to hear outstanding speakers discuss the issues of equity as well as provide ideas for helping us make mathematics engaging for ALL our students. What better way to kick-off a program on equity than having past-president of NCTM, Lee Stiff, share his insights, expertise, and humor. I would like to extend a personal thank you to the Program Committee who helped to shape this year's program: John Benson, John Diehl, Harlan Goldberg, and Paul Christmas. In closing, I would ask that as you reflect on your teaching throughout the year, ask yourself, "what am I doing to recognize the diversity in my classroom so that a high quality mathematics education is accessible to all my students?"

I hope your year is off to a great start, and we look forward to seeing you throughout the year.

MMC BOARD OF DIRECTORS		Term
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POINTS AND ANGLES

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Thanks to Isaac Greenspan for creating P&A graphics.

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Board Report

Meeting of 2 February 2004

By STEVE VIKTORA

The Board of Directors held its final meeting of the 2003-2004 academic year on 25 May 2004. The following are highlights of that meeting.

- Ron Vavrinek reported that although the club is in sound financial condition, he raised concern that we are losing money at each dinner meeting. After a long conversation about possible remedies, the Board members decided to raise meal prices to \$31 for members and \$37 for nonmembers.
- The Board decided to continue the coupon policy through January, 2005. The coupons will reduce the meal cost of a new attendee by \$7 if he or she also joins the MMC and by \$5 if he or she does not join.
- Mary Wiltjer reported a club membership of 513, of whom 15 are first year members, 45 are retired members, and 64 are student members.
- Phil Gartner was selected to complete the term of Jen Jayson.
- Mary Wiltjer reported that the MMC Conference of Workshops would be held at Francis Parker next year and that Isaac Greenspan will be the new co-chair with her.
- The Board decided to host a reception honoring retired teachers at the ICTM conference in Springfield this October.

The next meeting of the Board is scheduled for 24 August 2004 at Cucina Biagio (7309/7319 W. Lawrence Ave., Harwood Heights) at 6:00 PM. Members of the club are welcome to attend any Board meeting, but please contact Gwen Zimmermann at gzimmer@hinsdale86.org before 16 August if you plan to attend this meeting. Because this is a dinner meeting, you would be expected to pay for your meal.

MMC Membership and Change of Address Form

Mail to: MMC
415 S. Ridgeland Ave. #2
Oak Park, IL 60302

Make check payable to MMC.

Please use a different form for each person.

Name _____

Membership: New Renewal

Address _____

Choose one:

1 year (\$20) _____

2 year (\$35) _____

3 year (\$50) _____

Phone _____

1st year teacher _____

School _____

retired (\$10) _____

Address _____

student _____

Phone _____

Donations:

Scholarship Fund _____

E-Mail _____

Speaker Fund _____

Check preferred mailing address above.

Total amount of check: _____

Change of Address

The Importance of the Transition Years, Grades 7-10, in School Mathematics

Zalman Usiskin

BY JENNY WEXLER

This past May was the most recent of the tradition of biennial talks by Zalman Usiskin at MMC meetings. Jim Martin and Steve Miller, two people from very different times in Zalman's distinguished career, introduced him. Jim Martin supervised Zalman's student teaching when he was first starting out, and Zalman supervised Steve Miller's student teaching quite recently. Jim and Steve's personal introductions prompted Zalman to reminisce about his early years as a teacher before beginning his talk on mathematics in the middle years, which he defined as the four years from grade 7 through grade 10.

If we consider the knowledge that students have at the end of elementary school and the knowledge that students must have to be successful in late high school, we can see that the years from grade 7 through grade 10 should be a time of important developments in a student's mathematical understanding. Zalman specified seven transitions in students' mathematical thinking that ought to result from schooling in these middle years:

- (1) from whole number to real number
- (2) from number to variable
- (3) from properties of individual figures to general properties of figures
- (4) from inductive to deductive arguments
- (5) from operations on two numbers to statistics on sets of numbers
- (6) from informal descriptions to formal definitions of mathematical ideas

(7) from mathematics as facts to be memorized to mathematics as interrelated ideas

Unfortunately, these transitions usually do not occur. Instead, schools "remediate, accelerate, and consolidate." A focus on pedagogy displaces content, rather than supporting and strengthening it. The first transition, from whole number to real number follows a progression: whole number \rightarrow fraction \rightarrow rational number \rightarrow real

To begin the progression, Zalman gave several possible responses to the question, "What is a fraction?" Everyone in the room agreed that $\frac{2}{3}$ and $\frac{12}{5}$ are fractions, but there were differences of opinion about numbers such as 2.4 and $\frac{\pi}{2}$. Zalman emphasized two meanings of fraction: "an indicated quotient," in which the fraction is viewed as an ordered pair, and "a performed quotient," in which the fraction is viewed as a single number. This distinction helped clarify that "fraction" and "rational number" are not synonymous, as seen with the fraction $\frac{\pi}{2}$. From there we were able to continue on to real number.

Zalman provided examples in each of his seven identified transition areas to help us fully comprehend each one. Each of his examples gave us a practical application within the existing curriculum. These transitions are not easily put into a list of objectives. Our curriculum assumes these transitions are made automatically or in earlier grades. However, it is clear that many students do not experience these critical transitions. We must take responsibility and address this issue in our schools and in our teacher preparation programs.

Problem 0405-01

BY MICHAEL KEYTON

In each issue of Points and Angles this year a mathematical problem (puzzle) will be included. They will be selected from different aspects of mathematics. I must start with geometry. This is a nice problem in that it has several solutions, some messier than others. There are a large number of corollaries that can obscure the solution.

Given: $\triangle ABC$ with angle bisectors AP, BQ, and CR, $m\angle A = 120^\circ$

Find: $m\angle QPR$.

The Value of MMC Meetings

Since 1913, we have been providing the Chicago-area with outstanding programs on issues related to the teaching of mathematics. MMC's reputation is such that we are able to attract nationally recognized speakers to our meetings who together with our local talent keep us informed on current issues in mathematics education. When we bring in speakers from out of town, we cover their travel expenses, one night's lodging, and offer a very modest honorarium. In the last couple of years, we have not been able to completely cover our costs and have dipped into reserves to make up the difference. To help cover increasing expenses for travel and higher meal costs, the Board has approved an increase to the cost of monthly meetings. Beginning with the September meeting, the cost for MMC members will be \$31 and the cost for non-member will be \$37. We are fortunate to have an organization, like MMC, that not only provides outstanding programs each year, but also provides an opportunity once a month for mathematics teachers to get together to share what is happening in mathematics classrooms across the area.

MMC Dinner Coupon

\$5 off a dinner for New Attendees

— or —

\$7 off a dinner for New Attendees
who join MMC

_____ name _____ date used

Valid only at the MMC Meetings on September 17, October 29, November 12, and December 10, 2004 and January 14, 2005. Expires January, 2005. Limit one (1) coupon per person.

Win Sally's Quilt!

Many of you have seen the quilt displayed that Sally Dodge made to benefit our Scholarship fund.

Tickets are \$1 each or six for \$5.

Detach the coupon below and send it with your check and a self addressed, stamped envelope to:

Bill Roloff
Lake Park High School
500 W. Bryn Mawr
Roselle, IL 60172

MMC Quilt Raffle

Name _____

Number of tickets purchased _____

Amount of purchase _____

NOTICES & REMINDERS

Upcoming MMC Meeting

Friday, September 17th—Lee Stiff
Making Math Work For All Students

The MMC Conference of Workshops

Saturday January 29th
at Francis W. Parker School

ICTM 56th Annual Meeting in Springfield

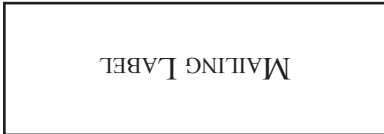
Friday and Saturday, October 15th and 16th

[HTTP://WWW.MMCCHICAGO.ORG/](http://www.mmcchicago.org/)

Old issues of POINTS AND ANGLES, summaries of talks given at MMC meetings, the MMC Scholarship application, job openings and people looking for jobs, and more!

If you would like a notice or reminder to appear in POINTS AND ANGLES, please email the text you would like to appear to kristenclegg@comcast.net no later than the date of the MMC meeting preceding the issue in which you would like it to appear. All notices are subject to editing.

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



METROPOLITAN MATHEMATICS CLUB OF CHICAGO
c/o MMC
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