Math Murmurs

VOLUME 34, ISSUE 1
FALL 2014

The Official Newsletter of the Association of Teachers of Mathematics in Massachusetts
an affiliate of the National Council of Teachers of Mathematics

A Message from the President, Steve Rattendi

I am always amazed how quickly we establish routines in the first quarter of the school year: remember names; get to know the quirks of our students (and they get to know ours); and get things up and running in our classes. It is really as if we never left, and summer seems so far away -- both the summer we just finished, and the summer yet to come.

It also amazes me to think that the Common Core State Standards were released in their final form in June of 2010. To most of us, including myself, they still feel quite new as we are continuing to adopt and adapt curriculum. Here in Newton, teachers spent a great deal of time this summer building and gathering resources for grade nine that align content while also embedding the Mathematical Practices. The second of these is not an easy task, and, yet, it is a necessary one in order to successfully engage students in the deeper mathematical thinking and reasoning called for in the standards.

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Brain Research and Mathematics

Submitted by Joan Martin

Pat Davidson, renown expert on this topic, will headline the ATMIM Winter Conference at a time and place to be determined. Grade interval breakout sessions, dinner and a Q&A panel discussion will follow. Stay tuned for this cutting edge conference.

ATMIM would like to invite you and your colleagues to the first Dine and Discuss of 2014-2015

Dine and Discuss: Early Childhood Education
Thursday, November 6, 2014 from 4:30-7:00

Implementation of mathematics standards into early childhood classrooms is both rewarding and demanding. This Dine and Discuss is designed for teachers to further the discussion of integrating mathematics into their teaching practices that address the cognitive, linguistic, and other domains in early childhood education. Teachers will visit PreK, K, and grade 1 classrooms at the Heath School as part of this presentation.

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Inside this Issue

Upcoming Events

More information on all of these events will be posted online at www.atmim.net.

November (11/6/2014)
Dine and Discuss: Early Childhood Education
Brookline, MA

January (1/8/2015)
Winter Conference
What's the Brain Got to do with Math?
Hopedale, MA

February:
Dine and Discuss
Finding and Incorporating Real World Examples
Foxboro, MA

March
Dine and Discuss
topic TBD
Chelmsford, MA

April
4/15 - 4/18/2015
NCTM Annual Conference and Exposition
Boston, MA

NCTM | NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

THE NATION'S PREMIER MATH EDUCATION EVENT

2015 NCTM Annual Meeting & Exposition

Save the Date

April 15–18, 2015

Boston Convention & Exhibition Center Boston, MA

MARK YOUR CALENDAR

NCTM's Annual Meeting & Exposition brings together the most influential leaders and accomplished practitioners in mathematics education for three-and-half days of high-quality professional development that you can't afford to miss.

Conference sessions will focus on the latest trends, technologies, and topics facing the profession, and with access to more than 700 sessions, you will leave this conference with the information, strategies, and tools that you can immediately use to improve the quality of education for students in the classroom.

Conference topics addressed will include the following*:

- Assessing the Common Core State Standards for Mathematics
- Problems Worth Solving
- Supporting Students as Learners
- Supporting Teachers as Learners
- Integrating Mathematics with Other Disciplines

WHO SHOULD ATTEND?

- Pre-K–12 teachers
- Math teacher educators
- New and soon-to-be-teachers
- Math coaches and specialists
- Math researchers
- School and district administrators

Plan ahead to attend the 2015 NCTM Annual Meeting & Exposition.

Using Spreadsheets to Teach Mathematical Sequences

Submitted by Susan Weiss

A spreadsheet is a great teaching tool for looking at patterns and solving lots of problems. I used this example with my third graders as we explored patterns of numbers.

How to build a 100 chart: Start with 0 in cell A1. Discuss what comes next and how one can build the next number from 1, and repeatedly building from the previous number. The next step was learning how to add 1 to zero in a formula (in Excel: in cell B1 type "=a1+1" then press enter. Now click and drag to highlight from B1 to J1 then use the fill right (Ctrl R) command or highlight cell B1 and drag the corner dot of this cell to J1. Now you have the first row completed. Discuss the pattern that they noticed under 0 which is building by 10's. Click on cell A2, enter the formula "=A1+10" and press enter. This time fill down from A2 to A10 (by either method just noted for filling right). Now one sees the multiples of 10 up to 90. The last step will produce the entire list of 100 numbers. Either click and drag from B1 to J10 and fill right or click and drag from B1 to J10 and fill down. This lets the children to see how the chart is built from nothing. The students then can highlight various patterns using color. Such as counting by any number. For extension, some children examined what would happen if you build on the pattern of two times a number plus 3 instead of ten times a number plus one.

Try it and see what happens. Spreadsheets are great for solving problems such as: you have to build from sticks either two legged animals or four legged animals or both. You have 21 sticks. What happens? (Adapted from POW from Math Forum, Drexel University (http://mathforum.org).

Enjoy and remember everyone can be successful with the spreadsheet.

NCTM News

Submitted by Susan Weiss

At the NCTM Annual Meeting in New Orleans, LA (April 2014) ATMIM (Association of Teachers of Mathematics in Massachusetts) received the Gold Level certificate for having at least 50 percent of our members belonging to NCTM. The certificate was awarded at the Delegate Assembly (see photo).

ATMIM will host the next NCTM Annual Meeting, April 15-18, 2015 in Boston. This is an opportunity for all Massachusetts math teachers to attend an NCTM Annual Meeting without paying airfare. Registration will open soon. If you need to book a hotel room, please do it when registration opens.

In 2020, NCTM will begin holding the Annual Meeting in the Fall.

Photo:Linda Gojak, Pres. NCTM; Susan Weiss, ATMIM's NCTM representative.; and Steve Yurek, Past ATMIM president

Hall of Fame Inducts Betty Bjork, Thomas Moore and Susan Jo Russell

Submitted by Joe Caruso

Betty Bjork taught in the Lincoln Public schools. She took on responsibility for curriculum as well as training and evaluation of teachers. She served as a representative to the Boston Area Math Specialists.An early user of computers in the curriculum, she founded and directed the EdCo Computer Center for the Greater Boston area (BAMS -- now encompassing twenty-five towns). Betty developed and directed an integration of technology M. Ed. program for the Educational Technology Center at Harvard. Betty served as Director at the Education Development Center from 1987-2005 obtaining funding from Ford, IBM, Computer Curriculum Corporation, Steck-Vaughn, and the University Corporation for Atmospheric Research (UCAR). To launch "The Math and More" and "The SkyMath Project" using real time weather data.

Betty was a speaker at national conferences for mathematics and science educators and consulted on various teacher enhancement and curriculum development projects. She served as ATMIM Treasurer for many years and hosted ATMIM meetings at her home. She Co-chaired the 1995 NCTM Annual Meeting in Boston, served as a member of the NCTM 75th Anniversary Task Force and helped direct the 1988 NCSM Meeting in Seattle. She chaired the Local Arrangements Committee for the1994 National Education Computing (NEC) annual meeting in Boston.

It is with this in mind that Betty was posthumously inducted this year into the Massachusetts Mathematics Educators Hall of Fame.

Thomas Moore as the Bridgewater State University Mathematics Department Chair, guided faculty members and students in the areas of teaching, professional service, and research. His other leadership roles included being the advisor for Pi Mu Epsilon, the local chapter of a Mathematics Honor Society, co-chair of the Abramson Colloquium Committee, an annual event honoring a former colleague, and the founder of Euler Day in 2007.

Tom took on leadership roles in three annual NESMAA meetings giving ungrudgingly of his time. His dedication extended to being a reviewer for The American Mathematical Monthly, a journal from the Mathematical Association of America and giving talks on his research at these events. Frequently Tom encouraged new faculty to become involved with the NESMAA and MAA, urging them to submit abstracts for talks and articles for publication, thus showing his enthusiasm for "spreading the news" of mathematics.

Tom often was a speaker for the North Eastern Section of the Mathematical Association of American (NESMAA) and for the New England Mathematical Association of Two-Year Colleges. He has reached out to secondary math educators in the region and presented workshops on using computer graphics in calculus and precalculus courses. He organized and moderated sessions on Ramanujan's contributions to mathematics, founded the James Fitzgerald's Memorial Award for the student with the highest Mathematics GPA, founded the Wheaton/Stonehill/Bridgewater Colloquium bringing together faculty members and students from those campuses to share and discuss relevant findings and approaches in mathematics education.

Tom was awarded the Dr. James DiNardo Award for Excellence in Teaching at the Bridgewater State University, the NESMAA award for Distinguished College or University Teaching of Mathematics encompassing the New England region and four Canadian Provinces and the Distinguished Service award at Bridgewater State University.

It is with this in mind that Tom Moore was posthumously inducted this year into the Massachusetts Mathematics Educators Hall of Fame.

Susan Jo Russell, beginning as a classroom teacher, evolved to staff developer, college faculty member, researcher, curriculum developer, conference presenter and author. Susan Jo is currently a Principal Scientist at the Education Research Collaborative at TERC in Cambridge.

Susan Jo has directed projects focused on computer education, mathematics for special needs students, professional development in mathematics for elementary and middle school teachers, research on students' and teachers' understanding of mathematics and curriculum design for elementary students including development of the Investigations in Number, Data and Space curriculum, which embodies her vision that curriculum materials could and should provide substantive work in important areas of mathematics, support students as mathematical thinkers, emphasize reasoning about math ideas, engage the range of learners in understanding mathematics, and support teachers' understanding of math content and pedagogy.

Susan Jo recognized that to change student outcomes, you have to change teacher input. She has had a significant impact on teacher learning. She has co-led teacher enhancement projects focused on strengthening teachers understanding of mathematics, helping them identify the

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ATMIM Awarded Scholarships to Graduating class of 2014

Submitted by Alison Mello and Sheri Flecca

Achievement Award ~ Non-Vocational
Jiarui (Jerry) Liu, Quincy High School

Anne Eliot Smith Award
Margalit Glasgow*, Newton South High School

Achievement Award ~ Vocational/Technical/Agricultural
Cassondra Walker, Bristol-County Regional Technical High School

Service Award ~ Non-Vocational
Pranathi Ganni, Canton High School

Service Award ~ Vocational/Technical/Agricultural
No Nominees

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important mathematical ideas that underlie the work of the elementary curriculum, and helping them investigate their own students' thinking about mathematical ideas. She developed, with a variety of collaborators, professional development materials that integrate teacher learning about mathematics content and about student thinking, including the on-line course, Connecting Arithmetic to Algebra, and the seven case-based modules in the Developing Mathematical Ideas series.

Susan Jo has been a leader in the national effort to transform the teaching and learning of mathematics. She has been active in NCTM, serving on the Research Advisory Committee, the Grades 3-5 Writing Group for Principles and Standards, the editorial group for Teaching Mathematics through Problem Solving. She served as a reviewer of Curriculum Focal Points and the Journal for Research in Mathematics Education. She has co-authored two professional development modules for NCSM. She has consistently presented at NCTM and NCSM conferences. She was a member of an NCTM group that provided input into the Common Core State Standards for Mathematics in an attempt to strengthen the careful building of ideas in central areas of content. The recent emphasis of Susan Jo's work is on the integration of the Content and Mathematical Practice Standards during the implementation of the Common Core. This is the focus of her work revising the Investigations curriculum, creating the NCSM professional development modules, contributing to the grade band elaborations on the Illustrative Math Project website, writing articles, and giving presentations. Susan Jo may be quiet and thoughtful, but she certainly isn't silent!

A colleague summarizes, "Susan Jo's deep knowledge and understanding of mathematics, and her profound respect for teachers, undoubtedly influenced by her roots as a classroom teacher, are apparent in every piece of writing, every presentation and every interaction. Whether Susan Jo is serving on a national committee, giving a keynote presentation to hundreds of people, leading a professional development session with a group of teachers, or talking with a third grader about her strategy for solving a problem, helping learners of all ages make sense of ideas is at the heart of her work."

ATMIM Welcomes Its New Board Members

Submitted by Steve Yurek

ATMIM is pleased to announce that Michelle Lippens has been elected as Director to the ATMIM Board. Michelle teaches at the Peabody Elementary School in Cambridge and has presented at various local conferences. We are excited that the ATMIM Board is being represented by many young teachers who share our vision and our passion to bring quality mathematics to all students in the commonwealth.

Katie Aspell has been involved with ATMIM for many years as an appointed member, serving as Conference Registrar for all our Winter and Spring Conferences since 2007, but now she has been officially elected to the Board and will serve as our new Secretary. She was the catalyst for the improvements to our web site, and brings a youthful viewpoint and perspective to the Board. Katie is currently in her 2nd year as math teacher at Canton HS.

Warm welcomes to both Michelle and Katie.

Our new President-elect is Nancy Johnson from Hopedale Jr. - Sr. HS. Nancy has been a member of the Board for the past 3 years, having served as Chair of the Scholarship Committee and co-Chair of last year's Spring Conference. Nancy is a Texas Instrument Certified instructor who has spoken at conferences at the local, regional and national levels. She will be completing the term of Donald Cameron who has accepted a position as a high school math teacher in another state. Congratulations Nancy.

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Problems to Ponder

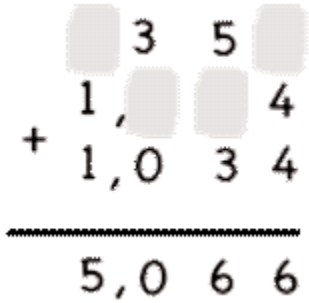
Submitted by Polina Sabinin

The elementary and middle school problems below were adapted from Greenes, C., Findell, C. , et al. (2006) Groundworks series for grade 4 and 7: www.mheonline.com.

The High school problems were taken from McLoughlin, J. G., (2002) Calendar Problems from Mathematics Teacher. NCTM.

Elementary School

1. Oops! Globs of goo are covering four digits. Figure out what they are.



2.
Group A: 11 6 4 5 8
Group B: 11 4 6 6 3
Group C: 1 6 4 3 12

Switch a number from one group with a number from another group so that all three groups have the same mean.

Which numbers did you switch? What is the mean?

3. Draw a square.
Draw 2 lines in the square.
Make 2 same-size triangles and 2 same-size trapezoids.

Middle School

4. Using the numbers 1, 2, 8, and 5 complete the equivalent statements below. Use every number.

a. (____ ÷ ____ + ____) ^{2} ÷ ____ = 5
b. ____ ^{2} – (____ ^{2} ÷ ____ ^{2} + ____) = 8
c. (____ ^{2} – ____ ^{2} + ____) x ____ = 176
d. ____ x (____ + ____ ^{2} x ____) = 26

5. Number bank: 57 61 65 66 9 61 60 59 58
Fill in the blanks with the numbers from the box. Use each number once.
The story must make sense.

Fred and his friends measured their heights in inches. From least to greatest, their heights are ____ , ____ , ____ , ____ , ____ , and ____ inches. The median height is ____ inches. The mean height is ____ inches. The range of the heights is ____ .

6. Draw a 24cm x 24cm square. Draw 2 lines. Separate the shape into 2 right triangles and 1 trapezoid. The area of Triangle B must be 1/4 the area of Triangle A. The area of the Trapezoid C must be 3 times the area of Triangle B.

Find the area of the three shapes.

High School

7. Find all points (x, y) that have an x-coordinate twice the y-coordinate and that lie of a circle of radius 5 with center at (2, 6).

8. Arrange the integers from 1 through 20 in a line so that the sum of each adjacent pair is a prime number. For example, a prime line of length 4 is 1 2 3 4. Note that 1 + 2 = 3, 2 + 3 = 5, and 3 + 4 = 7.

Contributed by Margaret J. Kenney and Stanley J. Bezuszka

9. The incorrect cancellation of the sixes in the following leads to a correct answer:

$$\frac{16}{64} = \frac{1}{4}$$

For how many other values of digits A, B, and C is it true that

$$\frac{AB}{BC} = \frac{A}{C}$$

where AB = 10A + B, BC = 10B + C, A ≠ 0, A ≠ C?

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President's Message continued from Page 1

Perhaps it is this difficulty that has over these four years allowed for a great deal of controversy to develop around the standards. They do require some change to implement well, and that change has been expected at an unrealistically rapid pace. In my view, the controversies are actually not about the Common Core, but rather about how states have chosen to implement those standards and the associated testing.

As educators, I think we have an obligation to know about those controversies and help dispel the myths. In a recent posting, Diane Briars, NCTM President, addressed some of the false ideas out there about the Common Core. If you haven't seen it, I encourage you to take a look:
http://www.nctm.org/about/content.aspx?id=42685.
Another document that might be of interest is a piece on the Common Core's own website:
http://www.corestandards.org/about-the-standards/myths-vs-facts/.

Despite all the controversy around the CCSS right now, I do hope it stays with us. How can we ever achieve the vision of any set of standards if the standards themselves keep shifting? We need a prolonged period of time with the standards to have them impact the curriculum and materials we use in the classroom. We need a prolonged period of time with the standards to have them impact student learning. I for one feel as if I am just getting started with the standards, and I am looking forward to many more years getting to know them and improving my own teaching along the way.

Have a wonderful school year, and I hope to continue learning with you at one of ATMIMs many events this year and at the NCTM Annual Conference in Boston!

Diane Briar's Post:

CCSS Myths/Facts Document:
http://www.corestandards.org/about-the-standards/myths-vs-facts/

Dine and Discuss: Presenters

Vicki Milstein
Early Education Principal in Brookline Public Schools

Min-Jen Taylor
PreK teacher in an inclusive classroom at Heath Elementary School and onsite supervisor with the Launch Summer Program, Brookline Public Schools

Location
Heath Elementary School (a Brookline Public School), 100 Eliot Street
Chestnut Hill, Massachusetts 02467

Additional Information
Dine and Discuss sessions include a light dinner such as sandwiches, soup and salad. The dinner will vary based on location. If you have particular dietary restrictions, please indicate them on the registration form.

Cost is $10.00 for ATMIM Members.
Non-ATMIM Members will also need to pay membership fees to attend.
Visit www.ATMIM.net to register.

Dine and Discuss: Early Childhood Mathematics

Additional Dine and Discuss Sessions planned for December, February and March on a variety of topics.
Keep an eye on www.atmim.net for more information.

Also remember, NCTM Annual Meeting and Exposition is in BOSTON in April! Registration begins November 1. Visit www.nctm.org for more information.

Lesley University 2nd Annual Summer Math Institute

Submitted by Steve Yurek

This past July, Lesley University sponsored its 2nd annual Summer Math Institute at its Porter Square Campus in Cambridge, with a focus on topics for Middle and Secondary School Teachers. The Theme was Problem Solving Using the Structure of Mathematics and attracted presenters and participants from 8 states. Our Keynote Speakers were Anne Collins from Lesley University and Jim Matthews from Siena College in Loudonville, NY. For each of the 3 days there were 2 Middle School and 2 Secondary School, morning workshops that lasted for 2½ hours. Each of the 4 presenters repeated their workshop after the luncheon, so that each participant had the opportunity to experience exactly what their colleagues from the same grade level had experienced in the morning. The experience was intense, but the comments were positive. Perhaps you'll be able to join us next summer from July 28 to July 30, 2015.

Answers to problems to Ponder

1. 2,358 + 1,674 + 1,034 = 5,066
2. Switch 8 from group A and 4 from Group C. The mean is 6.
3. A diagonal and a vertical or horizontal line through side midpoints.
4. a. 8, 2, 1, 5; b 5, 8, 2, 1; c. 5, 2, 1, 8; 2, 8, 1, 5
5. 57, 58, 59, 61, 65, 66, 60, 61, 9
6. A = 288 sq cm; B = 72 sq cm; C = 216 sq cm
7. (6, 3) and (2, 1)
8. 20, 17, 14, 15, 16, 13 18, 19, 12, 11, 8, 9, 10, 7, 6, 5, 2, 3, 4, 1
9. 26/65, 19/95, 49/98