

Math Murmurs

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



VOLUME 36, ISSUE 2
WINTER 2016

DATES TO REMEMBER

ONGOING:

ATMIM Online Book Discussion
What's Math Got To Do With It?
An eye-opening book by Jo Boaler
See ATMIM.net for entering the discussion

FRIDAY, FEBRUARY 26:

Massachusetts Hall of Fame for Math Educators
Nominations Due

SATURDAY, FEBRUARY 27:

Father Bezuska Achievement Award
Nominations Due

FRIDAY, MARCH 11:

ATMIM Student Scholarship Nominations Due

SATURDAY, MARCH 19:

ATMIM Spring Conference
Reaching ALL Learners
Marlboro, MA

THURSDAY, OCTOBER 20:

ATMNE Fall Conference
Manchester, NH

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Nancy Johnson,
ATMIM President

PRESIDENT'S MESSAGE

Teaching mathematics today is an ever changing challenge. Where do we start? Where do we look for help? If we are questioning changes in curriculum, changes in assessment, and certainly in instruction, how are the parents of our students coping? A January 8 Boston Globe article by Globe columnist Joanna Weiss (*Have the Math Wars Ended?*) mentioned the frustration of parents who wanted to help with homework but couldn't. Today our parents are faced with "area models",

PRESIDENT'S MESSAGE (continued from page 1)

“bar models” and “line plots”. As teachers, we are asked to encourage active participation, discussion and productive struggle. How can we

promote deep understanding of mathematics content in our classrooms and help parents to understand what their children are learning?

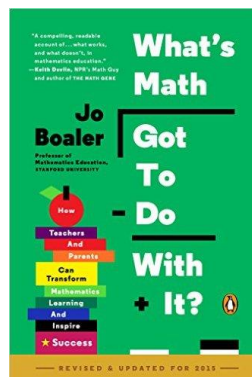
As I read Weiss's column, I became profoundly aware that Joanna's initial frustration with “Common Core” mathematics turned to a healthy respect because she participated in professional development opportunities designed for teachers. She comments that she learned that “subtraction is just ‘un-addition’ or the ‘directed distance’ between two numbers on a number line. “In my head, negative numbers turned from a series of tricks to memorize into a concept I could visualize.” As teachers, we have so much to learn that sometimes it is overwhelming. Do we focus on mathematical discourse, rich mathematical tasks, formative assessment and/or strategies for deep understanding? As we grow our practice, it is important that we remember to include the parents of our students. Think about having a family math night or send home resources for parents. Such communication will help prepare our students to become thinkers not memorizers, collaborators not isolationists, and most of all work towards making mathematics accessible to all.

With this changing landscape, all of us need reliable resources. ATMIM, ATMNE and NCTM are all working hard to support you. Join us in professional development opportunities that will broaden your teaching tool box. Remember to share helpful resources with parents. Save the date, March 19th, to attend the ATMIM Spring Conference focusing on Math for All.

Thank you for all that you do to support mathematics education in our state.

ATMIM ONLINE BOOK GROUP!

Join us in reading and discussing *What's Math Got To Do With It?* by Jo Boaler



Visit www.atmim.net to register.

ATMIM AWARDS TO HIGH ACHIEVING STUDENTS NOMINATIONS ARE OPEN

Submitted by Sheri Flecca

In the spring of 2016, the Association of Teachers of Mathematics in Massachusetts will make monetary awards of \$500 each and certificates of recognition to several members of the graduating class from schools in Massachusetts schools. The awards and the certificates will be determined on the basis of outstanding achievement or service in the field of mathematics. There is one award specifically for a senior at a vocational, technical, or agricultural school. Each student must be nominated by a member of the mathematics department of his or her school. There is one award specifically for a high achieving girl in the memory of Anne Elliot Smith, a mathematics teacher at Buckingham, Browne and Nichols, a member of the ATMIM Board and a 1985 Presidential Award winner.

Each secondary school in Massachusetts is strongly encouraged to nominate a student in each category. Please pay particular attention to the category for which you are nominating a candidate, as the judges cannot change categories. The official forms can be downloaded at www.atmim.net. A committee consisting of board members and other teachers of mathematics will review all applications and determine the award recipients.

Please note that the nominations must be received by **March 11, 2016**.

Nomination forms are available electronically on the ATMIM website under “Scholarship:”
<http://www.atmim.net>

If you cannot send the completed form electronically, or if you have questions, please contact Sheri Flecca at atmimscholarship@gmail.com.

REPORT ON THE WINTER CONFERENCE

Submitted by Nancy Johnson

The ATMIM Winter Conference took place at Hopedale Junior – Senior High School on Thursday evening, January 14th. Focusing on “Promoting Mathematical Discourse”, the keynote speaker, Nancy Anderson, engaged the audience of 65 mathematics educators of grades K – 12. Nancy gave useful strategies that can be used with students of all grade levels. The audience looked at video clips of successful “math talk” in the classroom. Participants were able to appreciate the benefits of promoting discourse to deepen mathematical understanding and improve communication. However, it is also interesting that while mathematical discussion does benefit understanding it can also be helpful in disclosing misunderstandings as well.

After Nancy’s keynote address, the conference participants were able to attend a grade-band breakout session of their choice. Nancy worked with K-5 teachers and focused on the strategies for math talk in K-5 classrooms, while two of her colleagues, Carrie Ferrin and Jin Lee, focused on strategies for facilitating whole class math

WINTER CONFERENCE *(continued from page 3)*

discussions in the 5 – 8 classroom, and Christine Relleva, from Foxborough High concentrated on activities that would lead to increasing discussion in the high school classroom.

Following the breakout sessions, a full course dinner was enjoyed and all the speakers answered questions in a relaxed dinner meeting.

ATMIM SPRING CONFERENCE

Submitted by Katie Aspell

Join us Saturday, March 19th, 2016 for our annual spring conference. We are really excited to be discussing the theme “Reaching All Learners”. We have over 20 exciting speakers who will talk about engaging learners through different technologies, varied activities, and with engaging problems. We are also honored to have Mahesh Sharma deliver our keynote. Professor Sharma is the founder and president of the Center for Teaching/Learning of Mathematics in Framingham, MA and Berkshire, England. He works in creating resources for parents and teachers to better guide students with learning difficulties. Professor Sharma is a specialist of mathematical learning problems, and we are looking forward to the insights he can share with all of us. We hope you can join us for an informative day!

PARENTS’ GUIDE TO THE COMMON CORE

Submitted by Sandy Ollerhead

As math teachers we’ve all heard parents express concerns about the Common Core State Standards. They often don’t understand the reasoning behind the CCSS and feel frustrated when trying to help their child with a homework assignment that uses methods different than those they learned in school. In our ongoing mission to provide our members with valuable resources they can use to enhance their teaching, ATMIM has gathered a list of websites that teachers can share with parents. These resources attempt to explain and demystify the CCSS and give parents strategies and tools they can use to help their child be successful mathematics students. All of these resources, along with a short description of each, can be found at the ATMIM website at <https://atmim.wildapricot.org/Parent-Resources>.

We’d love your feedback! Take a look at the resources and let us know which ones you find helpful. And if you have a favorite website that you share with parents, please pass it along for us to include in our list. You can reach us via email at atmim@wildapricot.org, or using our Twitter or Facebook page.

TECHNOLOGY AND MATHEMATICS – USING SPREADSHEETS AS A TOOL TO TEACH PATTERNS AND FUNCTIONS

Submitted by Susan Weiss

I am always looking for interesting ways to use the software that we all have. For my third graders, looking at the 100 chart and applying the chart for finding patterns and functions is a challenge but fun. I reported previously on exploring the 100 chart with Excel but I have now discovered that I can replicate this idea by using Google Spreadsheets. Here is what we did.

Directions for making a 100 chart building up instead of down:

1. Locate the cell A10. Put 1 in that cell. Now start building. In cell B10, type $=A10 + 1$ since you are building by 1. Click enter or return. Now you are ready to use the rule for the cells on that row till column J. In excel highlight cell B10 and all the cells to the right till column J. GO to **fill** and click on right. If you are using google spreadsheet, then drag the small circle on the bottom right of the highlighted square till column J (10th column) and let go. The cells will fill with the rule.
2. In Cell A9, type $=A10 + 10$ since you are building by 10 for numbers above. Click on enter or return. Now you are ready to use the rule for cells above till row 1. Highlight on A9, and then highlight the column going up. Apply the rule by going to **fill** by clicking on up. You should see the rule applied to the column. In Google, click on A9. You will see a small circle on the right and just drag that to the top of the column and let go. The entire row will fill with the rule.
3. Now highlight cells A1 to A9. Continue highlighting the rest of the table which is empty of numbers do not include the first row. Go to fill and click on the right. With google spreadsheet, highlight cells A1 to A9. Now you will see a small circle on the bottom right. Drag that till to the right till end of table. Everything should fill.

Now how can you apply this to other patterns. If you want to start at different number, you just change the number in A10 and the entire table changes. For example, you change the number from 1 to 50 and every number changes by 50. You can change the steps by changing the two rules. For example, in B10 change to $=A10 + 5$ which counts by 5. The second change is cell A9: $= A10 + 50$ as it builds by 50 as it goes up.

Let's now build a function based on the numbers on the 100 chart already built. Let's say the rule is to multiply by 3 and add 5.

Go to cell A22. Type $= A10*3 + 5$. Press return or enter. Apply the rule to the row first by highlighting A22 and then to J22. Click on **fill to** the right. On Google spreadsheet, highlight A22 and then drag the small circle on the bottom till J22. The whole the row should have the rule.

Highlight A22 and then to A13. Click on **fill up**. On google spreadsheet, highlight A22 and then drag the small circle on the bottom till A13. The whole the column should have the rule. Now apply the rule to the rest of the numbers. Highlight from A21 to A13 and then drag the small circle on the bottom to the fill the rest of the table.

It is really awesome to show.

PRESIDENTIAL AWARDS UPDATES

Submitted by Susan Weiss

In August 2015, Suzanne Kubik was announced as the Presidential Awardee for Mathematics in Massachusetts for 2013. Suzanne currently teaches Geometry, Algebra 2, and AP Statistics to 9th-12th graders at Middleboro High School. Here are some of Suzanne's thoughts on her trip to Washington, DC as an award winner. The awardees met with President Obama. "He spoke of his passion for education and his desire to provide the same opportunities for all Americans. He told us that he believes a solid educational foundation is the key to our future success as a country. He said the American Dream depends on it."


Suzanne also expressed other memories of the trip. "...the greeting our group received from every speaker we met with. The greeting was "Thank You." A Nobel Prize winning scientist had tears in his eyes when he thanked us for the difference we were making in the youth of America. He said his job of training collegiate scholars is easy; we had done all of the hard work. As teachers, it is rare that we get told thanks, or that people look at us with such respect. ..."

Nominations are now open. The 2016 Awards will honor mathematics and science (including computer science) teachers working in grades K-6. Nominations close on April 1, 2016. [Click here](#) to nominate a teacher.

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CALLING FOR HALL OF FAME NOMINATIONS

Submitted by Joe Caruso

OVERVIEW AND AWARDEE REQUIREMENTS

During the 2001-02 academic year, the Board of Directors of the Association of Teacher of Mathematics in Massachusetts voted to create the Massachusetts Hall of Fame for Mathematics Educators to honor outstanding colleagues in their midst. Charter members were inducted in 2001. New members are selected from a group of nominees by members of the Hall of Fame.

The nominee must have been involved in Mathematics Education in Massachusetts for a minimum of 20 years.

The educator must have a distinguished record as a teacher of mathematics in Massachusetts.

The educator must have made an extraordinary contribution to the advancement of mathematics education.

NOMINATING A COLLEAGUE

Describe the impact that the nominee has had on schools, school systems or universities by:

- A. Introducing or participating in the development of new programs, or modifying existing programs in mathematics education.
- B. Conducting workshops and giving presentations at the local, regional or national level.
- C. Authoring published mathematics or mathematics education articles, books or programs.
- D. Providing services to professional organizations.
- E. Demonstrating leadership in mathematics education at the state, regional or national level.

(Previous mathematics education awards or citations received by the nominee should be listed here.)

- F. Demonstrating a continual search for knowledge.

(Note that to be eligible for nomination, a nominee need not have achieved outstanding work in all of the above categories)

Nomination materials must include the following:

- Name, address, phone, and email address of the nominee.
- A two-page detailed description (provided by the nominator) of the ways in which the nominee meets the criteria cited above.
- The nominee's detailed, annotated resume.
- Two reference letters in addition to the detailed nomination.
- Posthumous and emeritus nominees are accepted.

Nomination and reference letters should be to the Hall of Fame Committee via email to Joseph Caruso jcaruso@framingham.edu or jlhospital101001@aol.com by Friday, February 26, 2016.

Hall of Fame Committee
c/o Joseph Caruso
Framingham State University
100 State Street
Framingham, MA 01701

NOMINATIONS SOUGHT FOR THE FATHER BEZUSZKA, S.J. ACHIEVEMENT AWARD

Submitted by John Bookston

ATMIM is seeking nominations for the Rev. Stanley J. Bezuszka, S.J. Achievement Award for Mathematics Teaching and Learning. This is an award to honor the commitment and excellence of teachers of mathematics in levels PreK – 16. The nominee should be an outstanding teacher of mathematics or mathematics education both within their school, district, or institution of higher education and the ATMIM community of members.

AWARD CRITERIA:

15 years of teaching mathematics PreK – 16
demonstrated excellence in stimulating students in their mathematics learning
history of presentations at ATMIM events
current ATMIM board members are ineligible

For more information on nominating individuals for this award and for a listing of past recipients, visit www.atmim.net and click “Educator Awards.”

Nominations are DUE by February 27!

A MESSAGE FROM ATMNE

Submitted by Janice Kowalczyk

When you joined ATMIM, you automatically became a member of the Association of Teachers of Mathematics in New England (ATMNE). ATMNE members receive two annual newsletters, the New England Mathematics Journal (NEMJ), invitations to regional conferences and more. All ATMNE publications have gone GREEN so make sure you keep your email up to date.

Professional Development Resources

Are you looking for good professional development resources?

Consider the *New England Mathematics Journal!*



Moving Principles into Actions: Understanding the Challenges and Promise of Principles to Action – May 2015

Classroom Assessment to Achieve the Common Core Standards for Mathematical Practice – May 2014

Mathematics Coaching – Implications for Change- May 2013

Envisioning Effective Implementation of the Common Core Standards for Mathematics - May 2012

Exploring the Richness of Geometry via Technology – May 2011

And Many More Issues at: <http://www.atmne.net/>

**For more information or to purchase issues contact:
atmne@keene.edu**

ATMNE FALL 2016 CONFERENCE

Submitted by The ATMNE 2016 Program Committee, John Donovan and Kim Knighton

NHTM [New Hampshire Teachers of Mathematics] is excited to host the next ATMNE [Association of

Teachers of Mathematics in New England] Fall Conference: "Vote for Mathematics! Developing Informed Citizens Through Mathematics."

The conference will be held on October 20 & 21, 2016, at the Radisson Hotel in Manchester, NH. The keynote speakers for the conference are NCTM President-elect [Matthew Larson](#), [Margaret "Peg" Smith](#), and [Tom Reardon](#).

NCTM REPORT

Submitted by Susan Weiss

NCTM ANNUAL CONFERENCE

The next NCTM Annual Conference will be April 13-16, 2016 in San Francisco. You should check out the newest interactives posted at www.nctm.org/Classroom-Resources/Interactives/. Many of them are now available for the iPad.

"MATHCATION" A NEW SUMMER IDEA

Jim Matthews, well known to those in New York and beyond, has dreamed up a conference called New Cubed which will unite all of NCTM Eastern Region 1 and part of Eastern Region 2. This joint conference will include the 6 New England states in ATMNE, AMTNYS of New York and AMTNJ of New Jersey. The dates are: June 27-29, 2016 at IONA College near NYC.

There will even be a concurrent STEM camp for grades 1-8 offered on site at the conference. It can truly be a family mathcation! There will also be some excursions to Broadway, Circle Line Cruises, or a Yankees Game.

BOARD MEMBER UPDATE

Submitted by Steven Rattendi, Past-President

BOARD OF DIRECTORS SHUFFLE PART II

There have been a few additional shuffles on the Board of Directors since the last edition of Murmurs.

BOARD MEMBER UPDATE *(continued from page 9)**President-Elect*

Due to the time commitments associated with a full-time job, being a mom, and working on a doctoral thesis, Alison Mello is stepping down as President-Elect. She will resume her role as a Director on the Board. Katie Aspell, our current Secretary, has been appointed to fill the role of President-Elect. Katie has been active with ATMIM for quite some time and is a mathematics teacher at Canton High School.

Secretary

Sandra Ollerhead, currently a Director, will take over the position of Secretary from Katie. Sandy joined the board this past summer and has proven to be a dedicated member of ATMIM. Sandra is a mathematics teacher at Mansfield High School.

BOARD POSITIONS UP FOR ELECTION

At our Spring Conference, we will be holding elections for the following positions:

- Treasurer – 4-year term
- NCTM Representative – 3-year term
- Two Director Positions

If you are interested in running for an elected position, please contact Steven Rattendi at steven_rattendi@newton.k12.ma.us.

MEMBERSHIP REPORT

Submitted by Joan Martin

The Winter Conference attracted a number of teachers to join ATMIM. In the last month over 60 new members have joined. Forty-four of these individuals have joined through our Elementary Building Membership. The annual dues for this type of membership is \$25.00 per building, which allows all Pre K- Grade 5 educators in the same elementary school to become members of ATMIM. The cost effectiveness of this type of membership has caught on! Elementary teachers have the daunting task of forming strong fundamental understanding of mathematics' concepts in their students. They require, deserve, and welcome strong support in their mathematics teaching. As you are reading this, maybe you might think about encouraging more elementary principals to become ATMIM members through an Elementary Building Membership!

ATMIM Board of Directors

- Nancy Johnson – President
- Kaitlyn Aspell – President-Elect
- Steven Rattendi – Past-President
- Sandra Ollerhead – Secretary
- Katherine Richard – Treasurer
- Susan Weiss – NCTM Representative
- Sheri Flecca – Director
- Joan Martin – Director
- Filiberto Santiago-Lizardi – Director
- Alison Mello – Director
- Stephen Yurek – ATMNE 2017 Co-Chair
- John Bookston – Newsletter Chair
- Joseph Caruso – Hall of Fame Liason
- Min-Jen Taylor – Hospitality/Registrar
- Cole Gailus – Newsletter Editor

**ELEMENTARY BUILDING
MEMBERSHIP**

**** \$25.00 (USD)****

Bundle (unlimited)

Subscription period: 1 year
No recurring payments

This membership covers all PreK-5 teachers in a given school building. After registering, you will be sent an e-mail with instructions on submitting the names and e-mail addresses for the teachers to be covered from your school.

PROBLEMS TO PONDER

Submitted by Polina Sabinin

The problems below are from the Problems to Ponder of www.NCTM.org. Notice that we are providing answers (not solutions) to the problems. Enjoy exploring with your students and go to www.NCTM.org for more wonderful problems, hints, and discussions.

ELEMENTARY SCHOOL

- Sam the Squirrel found a basket of pine cones one morning. He decided that every day he would double the number of pine cones in the basket in the morning and eat 2 pine cones out of the basket in the afternoon. At the end of the 3rd day, there were 34 pine cones in the basket. How many pine cones were in the basket when Sam the Squirrel found it?
- If 18 students occupy $\frac{3}{5}$ of the seats in the classroom, how many students would occupy $\frac{2}{3}$ of the seats in the room?
- In this multiplication example, P , E , and T represent different digits. What is the value of the three-digit number PET ?

$$\begin{array}{r} PET \\ \times \quad 3 \\ \hline TTT \end{array}$$

MIDDLE SCHOOL

- It's not too hard to form the number 9 using three 3's and any of the four standard mathematical operations $+$, $-$, \times and \div . But can you come up with four different solutions, each of which uses only one of the four operations? (Other standard mathematical symbols can be used as needed.)
 $9 = 3 + 3 + 3$
- What is the smallest integer that can be the hypotenuse of two different right triangles, each of which has legs whose lengths are also integers?
- A rectangular wooden block (not necessarily a cube) is painted on the outside and then divided into one-unit cubes. It turns out that exactly half of the cubes have paint on them. What were the dimensions of the block before it was painted?

HIGH SCHOOL

- Juliet bought 10 beads for \$18. The beads she bought are red, blue or silver. Red beads are \$1 each, blue beads are \$2 each and silver beads are \$5 each. If she bought at least one of each, how many red beads did she buy?
- How do I love thee? Let me graph the ways! Can you come up with one or more equations to graph a heart on the coordinate plane? The equations can be rectangular, polar, or parametric. **Bonus:** Can you shift your heart so the point or its interior includes the point (2, 14)?
- A plywood sheet in the picture is 45 by 45 inches. What is the approximate diameter of the log the sheet was made from? Hint: The diameter d of a circle equals C/π , where C is the circumference, but please do not make a mistake. The diameter of the log is not $45/\pi$.



PROBLEMS TO PONDER (*CONTINUED FROM PAGE 11*)**ANSWERS**

1. 6 pine cones
2. 20 students
3. 185
4. $9 = 3 + 3 + 3$; $9 = 3^3/3$; $9 = \sqrt{3 \times 3^3}$; $9 = 3^{3!} - (3!)!$
5. 25 units
6. Many different blocks match this criteria, including $5 \times 13 \times 132$, $5 \times 14 \times 72$, $5 \times 15 \times 52$, $5 \times 16 \times 42$, $5 \times 17 \times 36$,
 $5 \times 18 \times 32$, $5 \times 20 \times 27$, $5 \times 22 \times 24$, $6 \times 9 \times 56$, $6 \times 10 \times 32$, $6 \times 11 \times 24$, $6 \times 12 \times 20$, $6 \times 14 \times 16$, $7 \times 7 \times 100$,
 $7 \times 8 \times 30$, $7 \times 9 \times 20$, $7 \times 10 \times 16$, $8 \times 8 \times 18$, $8 \times 9 \times 14$, and $8 \times 10 \times 12$.
7. 5 red beads
8. Answers may vary. A variety of functions are available online.
9. About 10 inches