Math Murmurs

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

The Association of Teachers of Mathematics ATMIM in Massachusetts

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Nancy Johnson,
ATMIM President

PRESIDENT'S MESSAGE

It is an exciting time of change and transition in mathematics education! Educators from across the state have worked with the Department of Elementary and Secondary Education (DESE) to make refinements to the Massachusetts Frameworks. MCAS Next-Gen is being rolled out to better measure the critical thinking skills needed for success in the 21st century. The new test is being designed to build upon the best aspects of past MCAS exams and will be using innovative test questions from PARCC. Math teachers are being asked to teach math using brain science research that shows that anyone can learn to high levels. Research has shown that: mistakes grow your brain; when you believe in yourself your brain operates differently; when you believe in your students they do better; and visual math improves math performance. All teachers of mathematics, pre-K through higher learning, have been challenged to make math lessons real and of interest to their students. Involving students to discuss and write in the mathematics classroom allows them to actively manipulate and refine information and then process it with their prior understandings. To be mathematically literate, students must be able to communicate their ideas, collaborate, and to evaluate their own ideas and the ideas of others. Technology is constantly changing and affects how we teach, learn, and assess mathematics. Instruction should no longer remain as many of us have experienced it. Teachers of mathematics must step out of their comfort zone, take risks, and continue to constantly enhance their practice to successfully meet the expectations set upon us.

DATES TO REMEMBER

OCTOBER 20-21, 2016:
ATMNE 2016 Fall Conference
Vote with Math! Developing Informed Citizens Through Mathematics
Manchester, NH

January 12, 2017
ATMIM Winter Conference

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The Association of Teachers of Mathematics in Massachusetts (ATMIM) has existed since 1903. This organization remains devoted to improving mathematics education for all students in Massachusetts. Our purpose is to provide for the interchange of evolving ideas and current research involving the teaching of mathematics and its applications, to cooperate with other organizations in the improvement of instruction and curriculum, to promote professional and social relations among mathematics teachers in schools and colleges, and to increase interest in mathematics. In an effort to support this purpose, ATMIM has been actively involved in offering professional development for all teachers of mathematics, communicating with our membership using social media, and establishing a relationship with DESE.

In the 2016 – 2017 school year, our Winter Conference on Thursday, January 12th will focus on the mathematics of Next-Gen MCAS. Our first Dine and Discuss in November, will introduce or reacquaint you with the exciting resource of the math blogosphere. In February, we look forward to a Dine and Discuss meeting on growth mindset. On March 24th, our Spring Conference, "Taking Risks in the New Frontier: Rigor, Reasoning and Relevance" will take place. In addition we also encourage all of our members to attend the annual conference of The Association of Teachers of Mathematics in New England (ATMNE) on October 20th and 21st in Manchester, New Hampshire. It is entitled "Vote with Math! Developing Informed Citizens through Mathematics." National speakers Matt Larson (president of NCTM), Peg Smith (author of 5 Practices for Orchestrating Mathematics), and Tom Reardon (guru of Texas Instruments technology) are among the ATMNE presenters.

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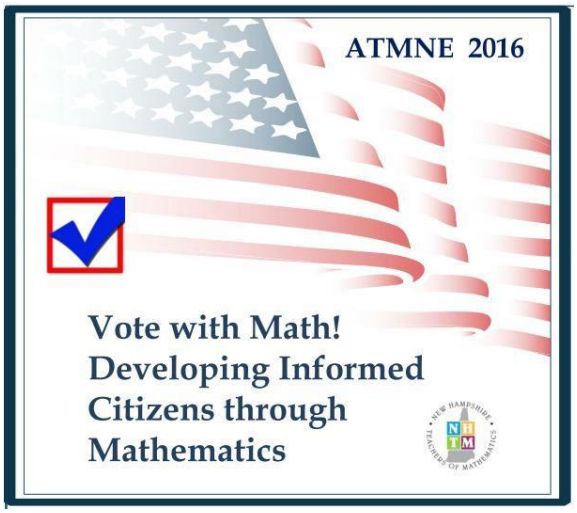
ATMIM looks forward to serving you. Check out our website and the resources available to you! Members of ATMIM, including our Board members, have served on committees initiated by DESE to represent the voice of mathematics teachers in our state. It is the intention of ATMIM to support you as you take on the new challenges of mathematics educators and that you will let ATMIM guide your way.

ATMNE 2016 FALL CONFERENCE KEYNOTE SPEAKERS



Thursday Oct. 20: Matt Larson, Overcoming Obstacles to Make Mathematics Work for All! In order to raise the achievement of all students and simultaneously close learning differentials, we must overcome the obstacles that have traditionally stood in the way of mathematics working for all students. This session will engage participants in examining the six principles of highly effective mathematics programs as outlined in NCTM's document *Principles to Actions* (NCTM, 2014), look at the action steps necessary to overcome these obstacles, and offer strategies for how we can better communicate to parents and other stakeholders what meaningful mathematics learning looks like today and why it is important.

Thursday: Tom Reardon, **My Favorite Math Activities and How Technology Makes Them Better** Tom has accumulated several excellent activities during his career. Many of them are enhanced or extended by technology. Some of them are only possible because of technology. Let's enjoy some of them together!

Friday: Margaret 'Peg' Smith, **Teaching Practices that Support Student Understanding and Learning of Mathematics** In the more than two decades since the release of the *Professional Standards for Teaching Mathematics* (NCTM, 1991), much has been learned about the teaching practices that support students' understanding and learning of mathematics. In *Principles to Actions: Ensuring Mathematical Success for All* (NCTM, 2014), this accumulated knowledge and empirical evidence has been codified into a core set of eight effective mathematics teaching practices that represent essential teaching skills necessary to promote learning mathematics with understanding. In this session, participants will explore each of the practices and consider how these practices can help in orchestrating productive discussions that foster student learning and engagement.

TRY IT… I PROMYS YOU'LL LOVE IT

Submitted by Katie Aspell

This past summer I experienced some truly great professional development. I spent six weeks sitting in a classroom for eight hours a day working on math! I worked with fellow teachers on problem sets exploring Number Theory at a depth that I had not experienced in the past. What is this fantastic PD you ask? PROMYS!

Boston University runs an intensive 6-week program for high school students, where the students take a college level Number Theory course (yet, it's so much more). At the same time, BU has a teacher program that runs side-by-side. This intense, amazing experience reignited my passion for the subject, not just for teaching it but for actually engaging in it. I spent six weeks struggling, at times even crying and sometimes whining, but loving every minute of digging in and working through problem sets that I was not able to complete.

Why did I love it so much? I got to be a mathematician again. I got to explore a concept until I chose to be done (not decided on by my students or the book or the curriculum). I found more confidence in myself and my depth of understanding. I found places where I could improve and had the time and support to do so. I was pushed to work harder, but had all the supports I needed to succeed.

We did not talk about curriculum or how what we were doing applied to our teaching, but instead just did math. I had the pleasure of spending the mornings with Dr. Glenn Stevens and Dr. Henry Cohn as they gave dynamic lectures on Number Theory, and then spending the rest of the day with fellow teachers of various grade levels playing and trying new problems, finding patterns, making conjectures, trying to prove or disprove them, and eventually using our new knowledge to go further. In our classroom we were surrounded by T^2's (graduates of the program or graduate students) who were our guides to probe our thinking or move us through frustration kindly with lots of questions. I felt what my students must feel, thought about my teaching and most of all thought about numbers.

PROMYS is a unique summer experience in which as a teacher you are humbled by the vast brilliance of those high schoolers around you, but at the same time inspired to foster the excitement in them and in all your students. (This does not do the program justice, but I highly recommend checking it out! It's so awesome you can go back for a second helping!)

For more information about PROMYS for Teachers visit www.promys.org/pft

ATMIM SENIOR SCHOLARSHIP AWARD WINNERS

Submitted by Sheri Flecca

ATMIM is pleased to announce three $500 scholarships determined on the basis of outstanding achievement or service in the field of mathematics. Each student was nominated by a member of the mathematics department of his or her school. There is an award specifically for a senior at a vocational, technical, or agricultural school and another to be given to 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).

The Class of 2016 ATMIM Scholarship winners are:
Achievement: **Rigel Galgana**, Canton High School, nominated by Marty Badoian
Service: **Chloe Adler-Mandile**, Nashoba Valley Technical High School, nominated by Jessica Silvia
Anne Elliot Smith Award: **Namita Arunkumar**, Braintree High School, nominated by Courtney Miller

Congratulations to each of the winners and their teachers throughout their years of education.

PRESIDENTIAL AWARDS

Submitted by Susan Weiss and Hampshire Gazette

Congratulations to both Karen Schweitzer (Elementary - 2014) from Williamsburg, MA and Neil Plotnick (Secondary - 2015) from Everett, MA for winning the Presidential Awards for Excellence in Mathematics and Science Teaching from Massachusetts. The White House announced the winners on August 22, 2016 and presented the awards on September 8th in Washington, DC. Award winners receive a $10,000 award from the National Science Foundation to be used at their discretion, and are invited to Washington, D.C., for an awards ceremony, as well as educational and celebratory events, and visits with members of the administration.

Karen Schweitzer - 2014 Awardee
Williamsburg, MA - Mathematics

Karen Schweitzer has spent most of her 34-year career as a kindergarten through second grade teacher. She has been at the Anne T. Dunphy School for 26 years, where she currently teaches third grade. In addition to her classroom work, over the last 22 years, Schweitzer has been part of an ongoing series of projects funded by the National Science Foundation with researchers from Mount Holyoke College and the Education Development Center. She has contributed to the "Developing Mathematical Ideas" professional development materials, and presented at national conferences. Schweitzer provides professional development in mathematics and mathematics education for pre-service and in-service teachers around the country.

Neil Plotnick - 2015 Awardee
Everett, MA - Mathematics

Neil Plotnick, an educator for 13 years, has been a special education teacher for the past nine years at Everett High School. He has had the joy of co-teaching in virtually every content area at the high school level including Algebra, Geometry, Chemistry, Biology, Earth Science, English, History, and Oceanography.

HALL OF FAME INDUCTEES

Submitted by Joe Caruso

Art Johnson

It can be said that Art Johnson has an extraordinary energy for helping teachers improve their teaching of mathematics. One of the ways this energy is realized is in his long list of publications. Art has written research articles, textbooks for K-12 students, textbooks for college students, articles for teachers and math specialists, and articles for the general public. The focus of much of his writing and research is in geometry, middle school mathematics and the history of mathematics but his influence goes far beyond those particular areas. Art's contributions can be found in the *New England Mathematics Journal*, *Connect Journal of Practical Math for Elementary School Teachers* and NCTM's journals, *D.C. Heath*, *Pearson*, *Dale Seymour*, *COMAP*, *Didax*, *Prentice Hall* and *Boston University*.

Art is a marvelous teacher! He has won numerous awards for his teaching including the Presidential Award for Excellence in Teaching, the Disney Corporation Teacher of the Year, the Richard Balomenos Mathematics Education Service Award and the Tandy Prize for Teaching Excellence. As a master teacher for the Chelsea Project, Art modeled exemplary classroom practices and conducted weekly afterschool courses for teachers. Art's presentations and classroom activities reflected his knowledge of research on how students learn mathematics and his strong mathematical background. He used engaging classroom tasks that highlighted mathematical relationships and at the same time enabled him to model worthwhile pedagogy.

Art has served the professional organizations by being an Associate Editor of Mathematics Teaching in the Middle Grades; as a representative to the National Council of Mathematics Teachers from Council of Presidential Award; serving on the Mathematics Assessment Board; being an instructor of NCTM's Geometry and Patterns Seminar; and Chair of NCTM Publications for regional Boston Conference. He is also a member of NCTM, NCSM, ATMNE and CPAM.

Art Johnson personifies the meaning of master educator; his induction into the Massachusetts Hall of Fame for Mathematics Educators is a fitting tribute to his outstanding career.

Faye Ruopp

After gaining her bachelor's degree in mathematics/mathematics education, Faye Ruopp pursued two master's degrees, one in teaching and the other in the teaching of special needs, all the while teaching mathematics at Lincoln-Sudbury Regional High School.

As a now member of the Massachusetts Hall of Fame of Mathematics Educators, Faye Ruopp's long and illustrious career was established because of her dedication, creativity and productivity. Faye is an effective mathematics educator, who has made an impact on many students, schools, and school systems. Having been a classroom teacher for twenty-one years at Lincoln-Sudbury High School, a college lecturer in mathematics and mathematics education for over ten years, a principal investigator on curriculum development projects, a mathematics consultant and instructional coach for schools, districts, and corporations, and an author, Faye has a unique and prestigious career that has improved the mathematics education in Massachusetts as well as in the United States and beyond.

While working at Education Development Center, Faye was instrumental in the creation of numerous curriculum programs and projects. Among them *Impact Mathematics*, a comprehensive middle school curriculum that completes a year of algebra by the end of 8th grade and *Reaching Every Teacher*, which was a local systemic change project designed for all mathematics teachers, grades K-12, in Waltham, MA.

Faye was also the Project Director for Teachers, Time and Transformations, a project addressing the issue of algebraic teaching and learning across the grades. She was the Project Director for Improving the Math Performance of Low-Achieving Middle School Students. This project addressed the issue of middle school mathematics and staff development for teachers in Massachusetts. Faye was a writer for *MathScape: Seeing and Thinking Mathematically*, a middle school curriculum project published by Glencoe/McGraw-Hill. Faye also wrote *The Math with a Laugh* Series in which she crafted math problems and her former student, Paula Poundstone, set the problems within funny stories. An amazing academic collaboration!

Faye is a tireless workshop presenter. Among the topics that she has focused on have been cooperative learning in mathematics, algebraic thinking, problem solving, and improving minority achievement in mathematics with strong application to middle and high school teaching. At the state level, Faye has presented at Lesley College Computer Conference, Harvard's Principal's Center and School of Education, the Massachusetts Teachers Association (MTA) Leadership Conference, and for ATMIM. She has also taught at Brandeis University, Worcester State College, and Salem State College. Additionally, Faye has presented for ATMNE, NCTM and NCSM.

Faye was co-chair of the 1995 NCTM Annual Meeting in Boston. Faye was a Lucretia Crocker Fellow, a distinction for Exemplary Teacher Initiated Programs. Her program was entitled, Student Team Learning. A strong proponent of effective cooperative learning, Faye conducted workshops on this teaching format for mathematics teachers in the state and region, and at the national level. Due to her high level of expertise and ability, Faye has been enlisted as a team member to evaluate mathematics programs in Massachusetts as well as throughout New England. These teams provide recommendations to make improvements in the district's K-12 mathematics programs.

Faye Ruopp's contributions to mathematics education have occurred over a long and distinguished career. Her achievements have been extremely impressive and more importantly her career is not over! She still beams light in mathematics education for others to be guided.

OVERVIEW AND APPLICATION PROCEDURE FOR THE MASSACHUSETTS HALL OF FAME FOR MATHEMATICS EDUCATORS

During the 2001-02 academic year, the Board of Directors of the Association of Teachers 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.

HALL OF FAME OVERVIEW AND APPLICATION PROCEDURE *(continued from page 7)*

Requisites:

1. The person has been a distinguished Mathematics Educator employed in a full-time capacity in Massachusetts for a minimum of 20 years.
2. The educator has made an extraordinary contribution to mathematics teaching in Massachusetts and/or the advancement of mathematics education.

Criteria and Supporting Evidence:

(Please provide supporting evidence for meeting the following criteria. Note that to be eligible for nomination, a nominee need not have achieved outstanding work in all areas.)

1. Introducing or participating in the development of new programs, or modifying existing programs in mathematics education.
2. Conducting professional development activities locally, regionally or nationally.
3. Authoring published mathematics or mathematics education materials in print or electronically.
4. Participating in and providing services to professional mathematics organizations.

5. Demonstrating leadership in mathematics education at the local, state, regional or national level. (Previous mathematics education awards or citations received by the nominee should be listed here.)
6. Demonstrating a continual search for knowledge.

Nomination Requirements:
Nominations are encouraged and should come from mathematics educators across the state. Nomination material must include the following:

- The 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.

Nomination and reference letters should be sent to the Hall of Fame Committee via email to Joseph Caruso at jcaruso@framingham.edu or jlhopital101001@aol.com by Friday, February 24, 2017.

Posthumous and emeritus nominees are accepted

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

PROBLEMS TO PONDER

Submitted by Polina Sabinin

Note from the Editor: *The ATMIM Board and Murmurs staff, on behalf of all Massachusetts math teachers, wish to thank Polina Sabinin for compiling Problems to Ponder for each issue of Math Murmurs over the past many years. She is pleased to know that these problems have challenged and inspired mathematical thinking of so many students. We hope to introduce you to a new compiler of such problems starting with our next issue.*

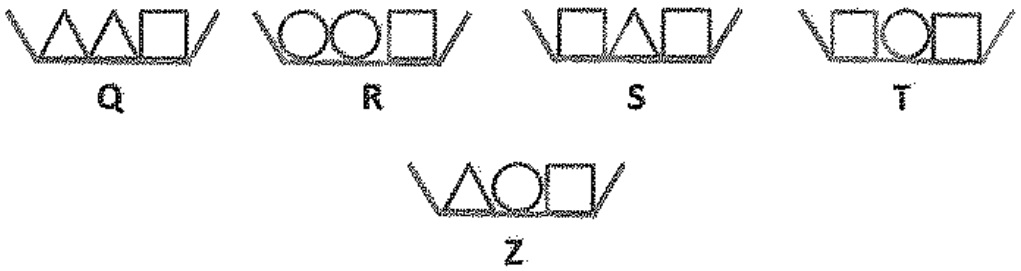
Questions are from 2016 Math Kangaroo International Competition in Mathematics (www.mathkangaroo.org) Math Kangaroo 2016 was held on March 17, 2016. For information about participating in this event, contact MathKangaroo@bridgew.edu.

ELEMENTARY SCHOOL

1. The numbers 1, 5, 8, 9, 10, 12, and 15 are divided into groups of one or more numbers. The sum of the numbers in each group is the same. What is the largest possible number of groups?

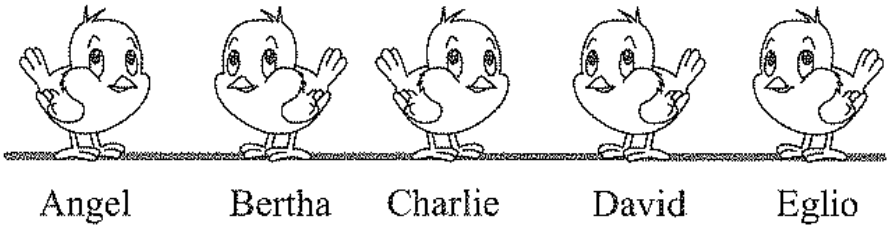
   a.1 b. 2 c. 3 d. 4 e. 5

2. Karin wants to place five bowls on a table in order of their weight. She already placed bowls Q, R, S, and T in order. Bowl T weighs the most. Where must she place bowl Z?



a. to the left of bowl Q
b. between bowl Q and bowl R
c. between bowl R and bowl S
d. between bowl S and bowl T
e. to the right of bowl T

3. Five sparrows sit on a branch, as shown in the figure. Each sparrow chirps the same number of times as the number of sparrows it sees. For example, David chirps 3 times. Then, one sparrow turns to look in the opposite direction. Again, each sparrow chirps the same number of times as the number of sparrows it sees. This time, the total number of chirps is more than the first time. Which of the sparrows turned to look in the opposite direction?



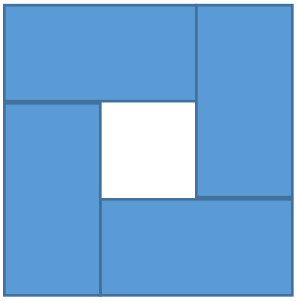
a. Angel b. Bertha c. Charlie d. David e. Eglio

MIDDLE SCHOOL

1. Two 3-digit numbers are made of 6 different digits. The first digit of the second number is twice the last digit of the first number. What is the smallest possible sum of two such numbers?

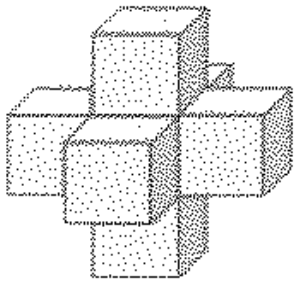
a. 552 b. 546 c. 301 d. 535 e. 537

2. The diagram shows four identical rectangles places inside a square. The perimeter of each rectangle is 16 cm. What is the perimeter of the square?



a. 16 cm b. 20 cm c. 24 cm d. 28 cm e. 32 cm

3. Seven standard dice are glued together to make the solid shown. The faces of the dice that are glued together have the same number of dots on them. How many dots are on the surface of the solid?

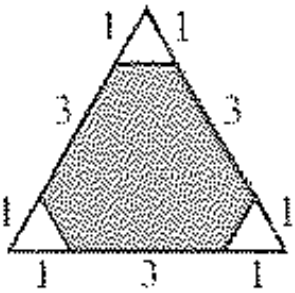


a. 24 b. 90 c. 95 d. 105 e. 126

HIGH SCHOOL

1. In a coordinate system four of the following points are vertices of a square. Which point is not a vertex of this square?
   a. (-1,3) b. (0,-4) c. (-2,-1) d. (1,1) e. (3,-2)

2. What percentage of the area of the triangle is the figure is shaded?



a. 80% b. 85% c. 88% d. 90% e. Impossible to determine

3. A plant wound itself exactly 5 times around a pole with a height of 1 meter and a circumference of 15 cm as shown in the figure. AS it climbed, its height increased at a constant rate. What is the length of the plant?

a. 0.75 m b. 1.0 m c. 1.25 m d. 1.5 m e. 1.75 m

ANSWERS:

1. B 2. B 3. C 4. E 5. E 6. D 7. A 8. C 9. C

MCAS NEXT-GENERATION UPDATE

Submitted by Steven Rattendi

For the past half-year, I have been attending "Communications Subgroup" meetings at the Department Of Elementary and Secondary Education where information has been distributed about the MCAS Next-Generation exam. What follows are some short summaries of important information you should know about this exam.

Terms:

- "MCAS Next-Gen" is the official title provided by the state for the new exam.
- "Legacy MCAS" is the unofficial title for the "older" MCAS exam that will be replaced by MCAS Next-Gen.

General Updates:

- Measured Progress will be the primary vendor responsible for test development and implementation.
- Measured Progress will subcontract some of its work out to Pearson Education.
- The state will retain greater control over the exam than they did with PARCC including using the State's previous system of panels of educators to review test questions and items prior to those items becoming part of the test.

Grades 3-8 Updates:

- MCAS Next-Gen will be implemented in Spring 2017 in grades 3-8 for both ELA and Mathematics.
- Computer Based Testing (CBT) will be phased in to meet a goal of full CBT implementation by the year 2019.
- For the Spring of 2017, CBT is mandatory in grades 4 and 8.
- MCAS Next-Gen will combine test items from MCAS Legacy, PARCC, and items developed specifically for MCAS Next-Gen.
- For the Spring 2017 implementation, MCAS Next-Gen will be untimed though this policy will be reviewed for future implementation years.

High School Updates:

- Legacy MCAS will remain the test for high school competency determination through, at least, the class of 2020. MCAS Next Generation will, therefore, not have a direct impact on high school testing until the Class of 2021 with possible implementation in 2019.

All of this information and much more is available on the DESE's website. Below are some links to useful information on MCAS Next-Gen implementation:

httpwww.doe.mass.edu/mcas/nextgen/default.html

Regardless of how you feel about state testing as a whole, one thing the state has made an attempt to do this time around is keep open the lines of communication. Monthly updates on MCAS Next-Gen are posted here:

http://www.doe.mass.edu/mcas/nextgen/resources.html

ATMIM will continue to keep you informed via email with further updates from the state.

MCAS NEW GENERATION PERFORMANCE LEVELS

Submitted by Filiberto Santiago-Lizardi

Since 1998 MCAS (Massachusetts Comprehensive Assessment System) tests, used in concert with ambitious learning standards has been a major component for measuring student academic gains and competency on the Standards Curriculum Frameworks in Mathematics and high school promotion requirement for diploma. Over the years, through revisions of our curriculum frameworks and content standards DESE has been upgrading our learning expectations for all students. In 2011, DESE unveiled the Standards Curriculum frameworks seeking with the rest of the country a common aligned measure or gage for Mathematical Competency. For the next five years, DESE (Department of Elementary and Secondary Education) has adopted Common Core MCAS and in the last two years pilot the Mathematics PARCC exam in some school systems across Massachusetts. The PARCC exam has brought to the forefront not only rigor, effort, and coherence but also controversy. Mathematics educators have expressed their concerns for a lack of adequate instructional materials and lack of access to necessary technology that will prepare our students for this test. Textbook publishers in general are re-

writing their textbooks to align better their academic content with Common Core but unfortunately at this time there is no perfect alignment. As a result, teachers are forced to search for additional teaching materials, resources, strategies, and ideas found on-line, in workshops, or at regional and national workshops and conferences to provide each child the best education possible in Mathematics.

The current general MCAS levels of performance in Mathematics are:

- "Advanced"
- Students at this level demonstrate a comprehensive and in-depth understanding of rigorous subject matter, and provide sophisticated solutions to complex problems.

- "Proficient"
- Students at this level demonstrate a solid understanding of challenging subject matter and solve a wide variety of problems.

- "Needs Improvement"
- Students at this level demonstrate a partial understanding of subject matter and solve some simple problems.

- "Warning/Failing"
- Students at this level demonstrate a minimal understanding of subject matter and do not solve simple problems.

A process of evolution for a new MCAS (MCAS next generation) was triggered by the need for a better alignment between curriculum materials, gaining a better understanding about learning progressions in mathematics academic content, text complexity and the interplay of reading and writing, the use of on-line technology for assessment, measuring readiness for success in college or a career after high school, the common core state standards, and the academic expectations of higher-education institutions and employers.

DESE began MCAS (New Generation) with the formation of a Standards Setting Policy Committee to revise the Achievement Levels of Performance Standards. The current PARCC Policy-Level Performance Level Descriptors on (grades 3-8 and HS) exam is:

Level 5: Exceeded expectations

- Students performing at this level exceed academic expectations for the knowledge, skills, and practices contained in the standards for English language arts/literacy or mathematics assessed at their grade level. They are academically well prepared to engage successfully in further studies in this content area.

Level 4: Met expectations

- Students performing at this level meet academic expectations for the knowledge, skills, and practices contained in the standards for English language arts/literacy or Mathematics assessed at their grade level. They are academically prepared to engage successfully in further studies in this content area.

Level 3: Approached expectations

- Students performing at this level approach academic expectations for the knowledge, skills, and practices contained in the standards for English language arts/literacy or Mathematics assessed at their grade level. They are likely prepared to engage successfully in further studies in this content area.

Level 2: Partially met expectations

- Students performing at this level partially meet academic expectations for the knowledge, skills, and practices contained in the standards for English language arts/literacy or Mathematics assessed at their grade level. They will likely need academic support to engage successfully in further studies in this content area.

Level 1: Did not yet meet expectations

- Students performing at this level do not yet meet academic expectations for the knowledge, skills, and practices contained in the standards for English language arts/literacy or Mathematics assessed at their grade level. They will need academic support to engage successfully in further studies in this content area.

According to PARCC, students with a score in performance level 4 or 5 earn a College and Career Ready Determination. The Standards Setting Policy Committee receive and review relevant data and information from a variety of sources to provide a broader context for next generation achievement levels and an understanding of student performance in Massachusetts including literature, articles, an overview of performance in terms of achievement levels established for other assessment programs, i.e. National – NAEP, and International – TIMSS provided by DESE to then brainstorm and come up with a new set of achievement levels.

The proposed blue print for achievement levels of performance standards proposed by the committee to Mitchell Chester the MA Commissioner of Education and the MA BESE (Massachusetts Board of Elementary and Secondary Education) are:

- ★ “Exceeding Expectations"
- ★ Students performing at this level exceed grade level academic expectations for knowledge, skills, and practices on this test and are well prepared for the next grade level.

- ★ “Meeting Expectations"
- ★ Students performing at this level meet grade level academic expectations for knowledge, skills, and practices on this test and are prepared for the next grade level.

- ★ “Partially Meeting Expectations"
- ★ Students performing at this level partially meet grade level academic expectations for knowledge, skills, and practices on this test and require additional instruction and intervention to be on track for the next grade level.

- ★ “Not Yet Meeting Expectations"
- ★ Students performing at this level did not yet meet grade level academic expectations for knowledge, skills, and practices on this test and require substantial additional instruction and intervention to be on track for the next grade level.

The MA BESE and the commissioner of education will bring this proposal for consideration to a vote in the next board of education meeting open to the public.

A final decision on score thresholds has not been proposed yet pending the approval of the proposed general set of new performance level standards. The company responsible for creating the MCAS (new generation) tests is Measured Progress from Dover, New Hampshire. The milestone timeline for grades 3 to 8 ELA & Math Standard Setting Context follows. Standard Setting recommendations to the BESE take place between October and November. MCAS test forms will be finalized in December. Test administration occurs from April to May. Scoring is in June. A preliminary scores reporting list will be available in July. Matching Performance Level Standards to equivalent Score Thresholds to be completed in August. Finally, results released in October.

NCTM AFFILIATE LEADERSHIP CONFERENCE

Submitted by John Bookston

What could compensate a math teacher for spending three precious days in July at the Hollywood Palace Casino in Las Vegas, suffering the 100 plus temperature, the crowds of innumerate gambling addicts and having to walk for blocks before coming to a pedestrian bridge that allows you to cross a main street? I survived these trials and came away from the NCTM Affiliate Leadership Conference with ideas to further ATMIM’s effectiveness and expand our membership.

1. We should be focusing on “Why we are working so hard to make a difference for our members rather than just stating what we are doing; and

2. We should be reaching out more to our membership to take on small committee assignments rather than Board members doing all the work.

Here is my attempt to try these ideas.

Rather than offering to do the work to expand our membership, I am offering to be chairman of a membership committee that brings in ideas, excitement and small efforts by more than a few members who have not participated before in the effort.

> If you have ideas and are excited about bringing many more math teachers into ATMIM, please volunteer.
>
> If you have ideas and are excited about improving ATMIM Murmurs, please volunteer.
>
> If you have ideas and are excited about ATMIM's Winter or Spring Conference or a Dine and Discuss, please volunteer to be on committee that will ask little of you.

Rather than just telling you our news (as in this issue), I want you to know that I am thrilled to be able to discuss the issues that so affect us all at Board meetings.

> If you have ideas and are excited about being part of such discussions, ask to be invited to a Board meeting to see for yourself how satisfying it can be.

You can reach me at john.bookston@gmail.com. Whatever you think, please let me know.

PROBLEM OF THE WEEK FROM MOMATH

Submitted by John Bookston

This is an addition puzzle published by the MoMath Museum in NYC.

Each letter corresponds to a different digit. Find the correspondence.

The following is an addition statement

			P	A	T	H
					T	0
			M	A	T	H
	S	T	A	R	T	S
+					A	T
	M	O	M	A	T	H

Below you will find one systematic approach to solving the problem. The first chart allows a cell for each possible digit for each letter used in the puzzle. By a process of elimination, there is an x in each cell that is NOT possible.

The explanation of my thinking is described in the foot notes below that chart. Below the footnotes, I have organized the clues that were found above. Finally, to the right is that answer to the puzzle.

This is the type of puzzle that I assign as a Problem of the Week. I give credit for any written out thinking process. There are many ways to approach the problem and I am not looking for "my way".

Students are encouraged to work together. I do not give any credit for the correct answer without detailed explanation of the process followed.

	0	1	2	3	4	5	6	7	8	9
A	x1	A=1	x2	x2	x2	x2	x2	x2	x2	x1
H	x1	x2	x5	x7	x7	x5	x3	H=7	x4	x1
M	x1	x2	x5	x7		M=5	x3	x6	x4	x1
O	O=0	x1	x1	x1	x1	x1	x1	x1	x1	x1
P	x1	x2	x4	x4	x4	x4	x3	x4	P=8	x1
R	x1	x2	x3	x3	x3	x3	R=6	x3	x3	x1
S	x1	x2	x5		S=4	x5	x3	x6	x4	x1
T	x1	x1	x1	x1	x1	x1	x1	x1	x1	T=9

x1: T+carry must =10 or 11. P+A can only carry 1 columns 4,5 and 6
P+A+carry can only be 1 T=9 and O=0
no other digit can be 9 or 0
x2: 4*9+A+carry=39 so A +carry=3, carry=2, A=1
x3: 1(A)+R+3 (carry)=10 column 3 rom right
x4: P+1(A)+1=10 so P=8 column 4 from right
x5: H+S=11 Must be 4+7 right column
x6: M=S+1 M= 5 S=4 left column

carry							**Answer**
		P=8	A=1	T=9	H=7		8197
				T=9	O=0		90
		M=5	A=1	T=9	H=7		5197
S=4	T=9	A=1	R=6	T=9	S=4		491694
				A=1	T=9		19
M=5	O=0	M=5	A=1	T=9	H=7		505197