Fall 2017 Newsletter

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UPCOMING MEETINGS

- **Joint Mathematics Meetings** January 10-13, 2018 in San Diego, CA

- **MD-DC-VA Section Spring Meeting** April 13-14, 2018 at VMI and Washington & Lee

- **MAA MathFest** August 1-4, 2018 in Denver, CO

FALL SECTION MEETING AT CHRISTOPHER NEWPORT UNIVERSITY

The Fall 2017 Meeting of the MD-DC-VA section of the MAA will be held at Christopher Newport University November 17—18, 2017.

Friday: The afternoon workshop on Friday will be run by Elizabeth Burroughs of Montana State University entitled *The MAA's Instructional Practices Guide: Making Use of a New Resource*. The banquet address, *The Power of Mathematics Teaching in an Age of Alternative Facts* will be given by David Kung of St. Mary's College.

Saturday: The morning address *The Geometry of Cubes* will be given by Francis Su of Harvey Mudd College. The afternoon address *Revisiting What Euler and the Bernoullis Knew About Convergent Infinite Series* will be given by James Sellers of Penn State.

SECTION GOVENOR'S REPORT

I hope that your summer was productive, but also relaxing. So many of us find our summer occupied with undergraduate research, our own research, and catching up on all of those items on our many to-do lists that seem to pile up during the rest of the year.

From all reports, MathFest 2017 in Chicago was filled with great speakers, good talks, and a lot of fun. Dr. David Carothers was gracious enough to represent our section at the meeting of Congress and shared that most of their time was spent on two tasks: assisting with the ongoing development of the MAA strategic plan and exploring what the role of Congress should be as we move forward.

The MAA strategic plan includes a variety of goals. These include the financial health of our organization, growing membership, growing the American Mathematics Competition (AMC), meeting participation and sponsorship sales, finalizing the publication partnerships, and developing a comprehensive program for donor development.

As the MAA continues to evolve and work on its new strategic plan, the board recently approved a new mission statement that they felt better reflected the diversity of the membership of the MAA: "The Mathematical Association of America's mission is to advance the understanding of mathematics and its impact on our world." The MAA website has also received some recent updates, I find it much easier to navigate and pages appear to load faster. Go check it out!

Our section bylaws have been updated to reflect the new leadership structure at the national level of the MAA passed at JMM 2017. We have also updated the awards committee language to reflect that there is one committee for both the John Smith Award for Distinguished College or University Teaching of Mathematics, to be awarded annually at the spring Section meeting, and the Sister Helen Christensen Service Award, to be awarded annually at the fall Section meeting. These changes will be voted upon at our fall meeting before being sent to the MAA for final approval.

MAA Project NExT continues to grow and accepted 90 new fellows in this year's cohort. This is the largest number of fellows in NExT history, but there are plans to accept even more fellows in the years to come. Our section also has a Section NExT and applications for the Fall 2019 cohort are being accepted until October 27. Contact Dina at dyagodich@frederick.edu for more information.

The MAA is trying to expand our membership by welcoming all individuals with an interest in mathematics. In the new departmental member structure (https://www.maa.org/membership/membership-categories), all undergraduates in participating departments have an MAA membership. This will be a wonderful way to involve future non-academia mathematicians in our great organization.

Negotiations with publishing company Taylor & Francis have been finalized and the MAA will partner with them to publish, market, and distribute the MAA journals. This partnership has many financial advantages and opens new markets and audiences for the journals. As an MAA member you will not notice any difference except for improvements in the online presence of the journals and how you access them. Our journals are great, try to find the time to enjoy some of the articles. The recent issue of FOCUS had a wonderful message from MAA president Deanna Haunsperger in which she shares ways in which we can better create a welcoming mathematical community by being aware of the concepts of "microaggressions" vs. "microaffirmations". She encouraged all of us to find ways to share positive messages, even at the smallest level, with our students and colleagues.

Be on the lookout for new MAA "Instructional Practices Guide", which has been under construction for almost 3 years and should appear soon. The Guide will be a companion to the latest CUPM Curriculum Guide. Externally-funded programs such as "Preparation for Industrial Careers in Mathematical Sciences" (PIC Math) are also great sources of innovative ideas on how to improve the quality of undergraduate mathematics programs. See https://www.maa.org/pic-math.

I hope to see you all at the Fall section meetings, to be held at Christopher Newport University on November 17-18. Looking further ahead, there are the 2018 Joint Mathematics Meetings to be held in San Diego, CA on January 10-13 and our spring section meetings at VMI and Washington ne& Lee on April 13-14, 2018.

Jennifer Bergner
MD-DC-VA section governor
jabergner@salisbury.edu

Helical columns on the front of the Duomo in Orvieto, Italy

Submitted by Steve Phelps

FOUND MATH

The MAA website features math-related photos submitted by members.

Fractal-like branching structures found in the ice crystals on a window on a sub-zero day in Minnesota.

Submitted by Paul Zorn

FRIDAY WORKSHOP: THE MAA'S INSTRUCTIONAL PRACTICES GUIDE: MAKING USE OF A NEW RESOURCE

The MAA Instructional Practices Guide is a companion guide to the 2015 CUPM Guide to Undergraduate Programs in the Mathematical Sciences. The IP Guide focuses on three core practices: Classroom Practices, Assessment Practices, and Course Design Practices. The guide is in draft form, preparing for release in 2018. This workshop will provide an overview of the contents of the guide and an opportunity to examine some of its recommendations in depth.

Elizabeth Burroughs is Department Head and Professor in the Department of Mathematical Sciences at Montana State University in Bozeman, Montana. A 2014-15 Fulbright Scholar, she has devoted the past decade to research in K-12 mathematics education. She serves on the Mathematical Association of America's Congress as the Representative for Teacher Education and is a lead writer for the MAA's forthcoming Instructional Practices Guide. Her current research focuses on the creation and use of materials for teacher preparation in undergraduate mathematics courses, as part of the NSF-funded META Math project. Before earning her Ph.D. in Mathematics from the University of New Mexico, Beth was a high school mathematics teacher in Atlanta, Georgia.

FRIDAY BANQUET ADDRESS: THE POWER OF MATHEMATICS TEACHING IN AN AGE OF ALTERNATIVE FACTS

Most citizens spend years in our mathematics classes before they ever cast a vote. Are we preparing them to be responsible, informed participants in a thriving democracy? What mathematics is required to understand current events, critically examine issues of social and economic justice, and properly evaluate public policy proposals? What can educators who teach mathematics do to fight back against the rise of alternative facts? We will discuss example problems, student projects, and pedagogical choices that push us in the direction of a more just world.

Dave Kung's varied interests are a perfect match for a liberal arts institution like St. Mary's College of Maryland. In addition to teaching mathematics, using his doctorate from the University of Wisconsin–Madison, he plays violin with students and in the local community orchestra, runs with the cross country team, and marches alongside campus activists. He has authored a variety of articles on topics in harmonic analysis and mathematics education, and is the recipient of numerous awards including the 2006 Teaching Award from the MD/VA/DC section of the MAA. His passion for leveling the playing field for women and minorities in STEM fields has led to the creation of an Emerging Scholars Program, an REU, and a math circle. Two Great Courses lecture series, on math/music and mind-bending paradoxes, have engaged audiences around the world. He serves as director of MAA Project NExT, a professional development program for new faculty in the mathematical sciences

VOTING ON EDITS TO SECTION'S BY-LAWS

It was moved that the Executive Committee introduce these changes in order to combine the committees for the John Smith Award for Distinguished College or University Teaching of Mathematics and the Sister Helen Christensen Service Award. These are those changes.

In discussions with the MAA's Committee on Sections, we have also updated language to reflect current practices of the MAA. This includes removing references to the former "Governor" position and replacing that with "Representative to the MAA Congress," specifying committee composition for the Awards Committee, and indicating that appointments will be made with diversity in mind.

The entire Bylaws are listed at http://sections.maa.org/mddcva/ OtherDocuments/ BylawsUpdated09282017.pdf with emphasis drawn to areas where changes are being made. Old language that is being deleted appears in strikethrough, and new language appears in bold.

These changes have the blessing of the Committee on Sections and will be voted upon during the General Membership Meeting at the Fall 2017 meeting of our section.

SATURDAY MORNING ADDRESS: THE GEOMETRY OF CUBES

Cubes are one of the simplest geometric objects. Or are they? I will ask some basic questions that show how cubes are connected to many other mathematical ideas. Some are recent discoveries by undergraduates.

Francis Edward Su *is the Benediktsson-Karwa Professor of Mathematics at Harvey Mudd College, and past president of the Mathematical Association of America. During Fall 2017 he is Chern Professor at MSRI where he is co-directing a program on geometric and topological combinatorics. He has co-authored numerous papers with undergraduates. He also has a passion for teaching and popularizing mathematics. From the Mathematical Association of America, he received the 2001 Hasse Prize for expository writing, and the 2004 Alder Award and the 2013 Haimo Award for distinguished teaching. He authors the popular Math Fun Facts website and is creator of "MathFeed," the math news app. His hobbies include songwriting, gardening, photography, and theology. Just like mathematics, these are modes of creative expression that blend structure and freedom, truth and beauty, reflection and action.*

Fall 2017 Section Meeting Highlights

SATURDAY AFTERNOON ADDRESS: REVISITING WHAT EULER AND THE BERNOUILLIS KNEW ABOUT CONVERGENT INFINITE SERIES

All too often in first-year calculus classes, conversations about infinite series stop with discussions about convergence or divergence. Such interactions are, unfortunately, not often illuminating or intriguing. Interestingly enough, Jacob and Johann Bernoulli and Leonhard Euler (and their contemporaries in the early 18th century) knew quite a bit about how to find the *exact* values of numerous families of convergent infinite series. In this talk, I will show you two sets of *exact* results in this vein. The talk will be accessible to anyone interested in mathematics, so bring a friend!

James Sellers *received his Ph.D. from Penn State University in 1992. After receiving his PhD, he taught at Cedarville University in Ohio for nine years before returning to his alma mater in 2001 to serve as a faculty member and the director of the undergraduate program in mathematics. In 2008, James served as a Visiting Fellow of the Isaac Newton Institute in Cambridge, and in 2012 he was privileged to be a Fulbright scholar, teaching and completing research at the Johannes Kepler University and the Research Institute for Symbolic Computation in Linz, Austria. In May 2013, he delivered a series of lectures at the University of the Witwatersrand while serving as a visitor to The John Knopfmacher Centre for Applicable Analysis and Number Theory. Currently, James has over 95 papers listed in Mathematical Reviews, and he has won numerous awards from his department at Penn State and his section of the Mathematical Association of America for both his teaching and his service to the mathematical community. In February 2018, James will turn his attention to a new and very exciting opportunity – serving as the Secretary of the MAA!*

SECTION CHAIR'S REPORT

Greetings! I hope that this report finds you, your families, and your friends well. This is my first report as Section Chairperson, my eleventh year at Roanoke College, and my sixteenth year in the Maryland, DC, Virginia Section of the MAA.

NEWS FROM AROUND THE SECTION

◊ **Karin Saoub** published a wonderful new textbook in Graph Theory titled *A Tour through Graph Theory (Textbooks in Mathematics)* by Karin Saoub (CRC Press, 2017).

◊ Mathematics majors and faculty at Stevenson University are developing and hosting several outreach programs throughout the Fall semester including a math and science themed Escape Room and a math festival called the Mathstravaganza for Maryland STEM Festival. Contact **Benjamin Wilson** at bwilson4@stevenson.edu for more information.

◊ On June 1, 2017, **Bud Brown** retired from Virginia Tech after teaching there for forty-eight years, having served under six Virginia Tech presidents (and nine US Presidents).

"What'll I do in retirement? Well, my wife Jo and I will be doing a fair amount of traveling, and so I will miss our Fall Section meeting at Christopher Newport. However, I'll plan to be at the San Diego JMM in January, our Spring Section meeting at VMI/W&L (can't miss our section's Math Jeopardy!) and subsequent Section meetings and Math-Fests as our travels permit. There's also a book in the works for the MAA Carus Monograph series called "The Unity of Combinatorics", of which I am the junior author. Now, how can a 73-year-old geezer be the junior author of a book? The answer is that my co-author is the legendary combinatorialist, number theorist, and game theorist Richard Guy -- 101 years young as of Sept 30, 2017! Hope to see many of y'all at the JMM!"

As a graduate student at UVA, I didn't really know about the MAA and knew nothing about our Section. The first Section meeting that I attended was in the spring of 2007 when Roanoke College, the institution that had officially hired me just one month prior, hosted the meeting. I fell in love with the community aspect of our Section, and I've attended (almost) everyone Section meeting since! That meeting at Roanoke College featured Bud Brown giving a banquet address about hats, and I also distinctly remember that first infamous Math Jeopardy held by our Section at that meeting, a competition that has become so integral and exciting for us each spring.

Virtually all mathematics conferences have good talks on the latest research in a variety of fields and good talks about teaching mathematics, whether it be innovative ideas for the classroom, different assessment techniques, or radical ideas that could potentially reform mathematics education. What makes our Section wonderful, in my opinion, is that while our meetings do have these talks, what it also has is an immense sense of *community*. I have made so many professional friends outside of Roanoke College but inside my discipline through our Section meetings! At the start of each semester while making my syllabi, I make a point to list the Friday corresponding to a Section meeting as "no class" so that I can make the most of the conference. The pedagogical talks and discussion about teaching between sessions that I have with Section members helps my students, in the long run, *so* much more than that one day in class ever could.

Please feel free to contact me if you have ideas for our Section, and I will work with those ideas and the Executive Committee to advance our Section while highlighting the important community aspect of it that I have grown to love even more. If you have nominations for the John M. Smith Teaching Award or the Sister Helen Christensen Service Award, you can reach out to me so that I can steer you to whom those should be submitted.

For now, I hope to see each and everyone one of you at the fall meeting being held at Christopher Newport University; our own recently-retired Bud Brown will miss this meeting as he and his wife will be traveling, but he did inform me that he will definitely be at the spring meeting (April 13-14, 2018) in Lexington, Virginia, co-hosted by Washington & Lee University and the Virginia Military Institute! So, whether I see you this November or not, I hope to see you in April, when Bud will again play "Alex Trebek" for our Math Jeopardy competition. Oh, I also hear the weather in San Diego in January for the Joint Mathematics Meeting should be amazing, so I hope to see you there, too!

David Taylor
MD-DC-VA Section Chairperson
taylor@roanoke.edu

MORE NEWS FROM AROUND THE SECTION

Karoline Pershell (DC) is helping to coordinate the Association for Women in Mathematics' Fall Hill Day, scheduled for November 7. AWM volunteers from academia, industry and government, along with AWM student chapters, will be visiting Congressional offices and advocating for causes affecting STEM funding and women in mathematics.

"Having worked in government, I recognize that there are lots of causes competing for time and funding. By meeting with Congressional offices, we are able to give explicit examples and reminders of how legislation and program funding affects the mathematical sciences (and STEM generally) and why that matters for developing a diverse and STEM-savvy workforce. We can't assume that Senators and Representatives understand every nuance of how proposed legislation will affect varying demographics, but meeting with them affords an opportunity to have those discussions. I help organize Hill Visits because I believe this work has impact."

If you would like to learn more about Hill Visits, please contact hillvisit@awm-math.org.

Photo: May 2017 Hill Day Volunteers pose in the Russell Senate Office Building Rotunda on Capitol Hill before a day of meetings with staffers and members of Congress.
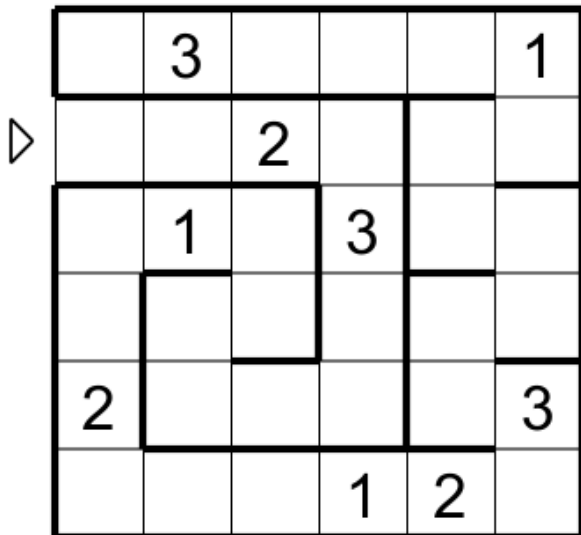
FALL NUMBER PUZZLE

Sudoku Labyrinth:

Following the direction of the path, enter the digits 1-2-3 in order. Each row and column must contain each number of the sequence only once. Some cells may be left blank.

Puzzle from innoludic.com

000003

STUDENTS LEARNING ALGEBRA I OR NOT: 1998-2017
Jerome Dancis, University of Maryland

Introduction.

During the last several years, there has been much talk in the media about students arriving in college underprepared. Rarely, if ever, is it mentioned that the situation has been deteriorating. From 1998 to 2005, there was a significant increase in the percentages of freshmen who needed remedial Math at the colleges in my state of Maryland (MD). Remedial Math is remedial Algebra I, if not arithmetic. College Algebra is similar to Algebra II of high school, but it provides college credit and hence is not labeled "remedial" or "developmental". An increase in the percentages of freshmen who needed remedial Algebra I, is equivalent to the decrease in the percentages of freshmen who knew Algebra I.

Some of the likely causes for the downturn[i] : High school Algebra I used to be the Algebra course colleges expected. Under the specter of the MD School Assessments (MSAs) and High School Assessments (HSAs)[ii], school administrators had been bending the instructional programs out of shape in order to teach to the state tests. The MSAs on math and the MD Voluntary Math Curriculum marginalized Arithmetic, thereby not allocating sufficient time for many students to learn Arithmetic. Arithmetic lessons were largely Arithmetic with calculator. The MD HSA on Algebra was Algebra with graphing calculator. The MD HSA on Algebra avoided the arithmetic and arithmetic-based Algebra students would need in college, such as knowing that $3x + 2x = 5x$ and knowing that $9x8 = 72$. I nicknamed it The MD HSA on "Pretend Algebra". The fastest way to find my website is to Google: "Pretend Algebra".

The Common Core math program reinstates the learning of Arithmetic, without calculator and Algebra I without graphing calculator. Maryland changed the state tests in 2015. Some counties were wise to start transitioning to Common Core math program a year earlier. How this will play out is to be seen. This year little more than a third (37%) of the students scored proficient (i.e. met or exceeded the standards) on the PARCC Algebra I exam.

1. More Students were Learning Algebra I in 1998: Analysis based on data by Maryland Higher Education Commission's (MHEC) Student Outcome and Achievement Report (SOAR).

The data for my state of Maryland (MD) is: (This data may be typical for many of the 45 states, which adapted the NCTM Standards.)

Decline in Percent of Freshmen Entering Colleges Maryland, Who Knew Arithmetic and Algebra I				
	1998	2005	2006	2014
Whites	67%	60%	58%	64%
African-Americans	44%	33%	36%	37%
Hispanics	56%	42%	43%	44%

Caveat. *This data describes only those graduates of Maryland high schools in 1998, 2005, 2006 and 2014, who entered a college in Maryland the same year.* MHEC obtains data from all the colleges in Maryland, but from no other state; this limits the data. I obtained the 2014 data this summer.

I also obtained the data for graduates of my county, Prince George's County.

Related Data. From 1998 to 2005, the number of white graduates *increased by 11%* (from 14,473 to 16,127), but the number who knew arithmetic and high school algebra I *decreased* (from 9703 to 9619) (as determined by college placement tests).

Similarly, **f**rom 1998 to 2005, the number of African-American graduates who were minimally ready for college Math *went down in spite of increased* college enrollments of females by 21% and males by 31%.

2. Be Wary of Social Promotion into Algebra in Grade 8.

I will connect two dots[iii] from the 2017 Maryland Report Card's PARCC report [iv] .

* 9,000 (43% of) Grade 8 Algebra I students scored less than "proficient"[v] on the 2017 PARCC Algebra I exam. But, students studying Algebra in Grade 8 are supposed to be exceptionally good ones.

* 8,000 students, who scored less than proficient on the 2016 PARCC Math 7 exam took Algebra I in 2016-2017. This suggests social promotion into Grade 8 Algebra.

Connection of these two dots (likely**).** The bulk of students, who scored less than proficient on the Math 7 exam, but still went straight into Algebra I in Grade 8, went on to score less than proficient on the Algebra I exam.

Questions: Why are students who score less than proficient on the PARCC Math 7 exam permitted to skip Math 8? Why are students who score less than proficient on the PARCC Math 7 exam permitted to take Algebra I in Grade 8?

This is a **National problem.**

Arithmetic Problem. (NAEP) "There were 90 employees in a company last year. This year the number of employees increased by 10 percent. How many employees are in the company this year?"

Questions: What fraction of Grade 8 Algebra students can solve this Arithmetic Problem? What fraction can do it mentally?

Nationally, less than half of eighth-graders in Algebra I answered correctly, (even when it was given as a multiple choice NAEP problem!)[vi]. This half of the eighth-graders in Algebra class have been guided into a trap; likely they will have great difficulty with Math in high school, also in a rigorous high school physics course.

STEM My professional common sense:

* Students who exceed the expectations

graduation exams will be 725 (2017), (which PARRC calls "Approached the standards"). It will rise over three years to 750 (which PARRC calls "Met the standards").
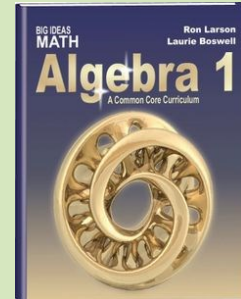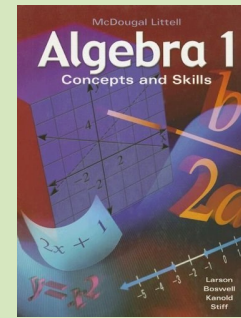
Let's look at some data.

Definition. "Proficient" means met or exceeded the PARCC standards.

Scoring Proficient On 2017 PARCC Algebra I Exam		
Grade	% of takers	% Scoring Proficient
6-7	10%	83%
8	30%	57%
9	50%	20%
10-12	10%	10%

This and other interesting data may be found in the thorough report on PARCC

"These students are trapped; their Algebra II teachers are also trapped."

on the PARCC Algebra I exam may be on track to be successful STEM majors in college.

* Students who merely meet the expectations on the PARCC Algebra I exam are on track to be at-risk STEM majors in college.

Goal for STEM. Many more students will exceed the expectations on the PARCC Algebra I exam.

Suggestion. Students who merely meet the expectations on the PARCC Math 7 exam, (but do not exceed them) will not be permitted to skip Math 8.

3. 2017 PARCC Results for Maryland and How to Access Your County's Results

Passing the PARCC English Grade 10 and Algebra I tests will be "required" for high school graduation in Maryland. A bit more than one in three (37%) students met the PARCC standards on the Algebra I exam. This should be unacceptable. Poverty plays a role. The education proxy for poor is "FARM", that is " Free And Reduced Lunch" students. Only one in six (16.6%) of FARM students met the PARCC standards on the Algebra I exam compared to about half (48%) of non-FARM students.

On the English 10 exam, there is a education gap, 56% of girls versus 42% of boys met the PARCC standards.

In Maryland, the initial passing score on the state mandated PARCC high school

results on the Maryland State Dept. of Education's website [vii]. Readers outside Maryland might check if their state's department of education provides as thorough a report on PARCC results.
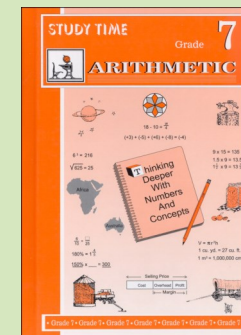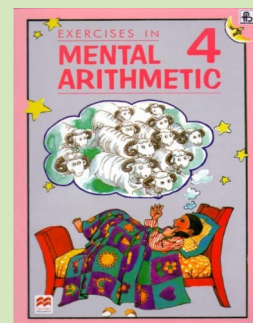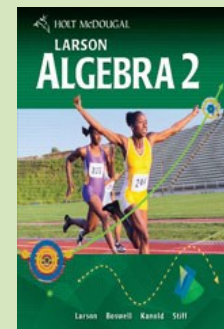
Algebra is generalized Arithmetic. Students with limited understanding of Arithmetic will have great difficulty learning Algebra I. Even super-teachers will have difficulty teaching Algebra I to students with limited understanding of Arithmetic.

The students studying Algebra I in Grade 9 in 2017, presumably were the same students taking Math 8 in Grade 8 in 2016. That only 20% of the students study Algebra I in Grade 9 in 2017 scored proficient on 2016 PARCC Algebra I exam is consistent with only 22% of students taking Math 8 in Grade 8 in 2016 scoring proficient on the 2016 PARCC Math 8 exam.

Intervention was needed! Provide Arithmetic workshops to supplement Algebra I classes for the 78% of Grade 9 Algebra I students who scored less than proficient on the PARCC Math 8 exam.

Warning. 40% of students scored less than "Approached standards" (725) on the PARCC Algebra I test in Spring 2017, many of them were still promoted into Algebra II for Fall 2017 or 2018. Students with limited understanding of Algebra I will have great difficulty learning Algebra II. These students are trapped; their Algebra II teachers are also trapped.

9

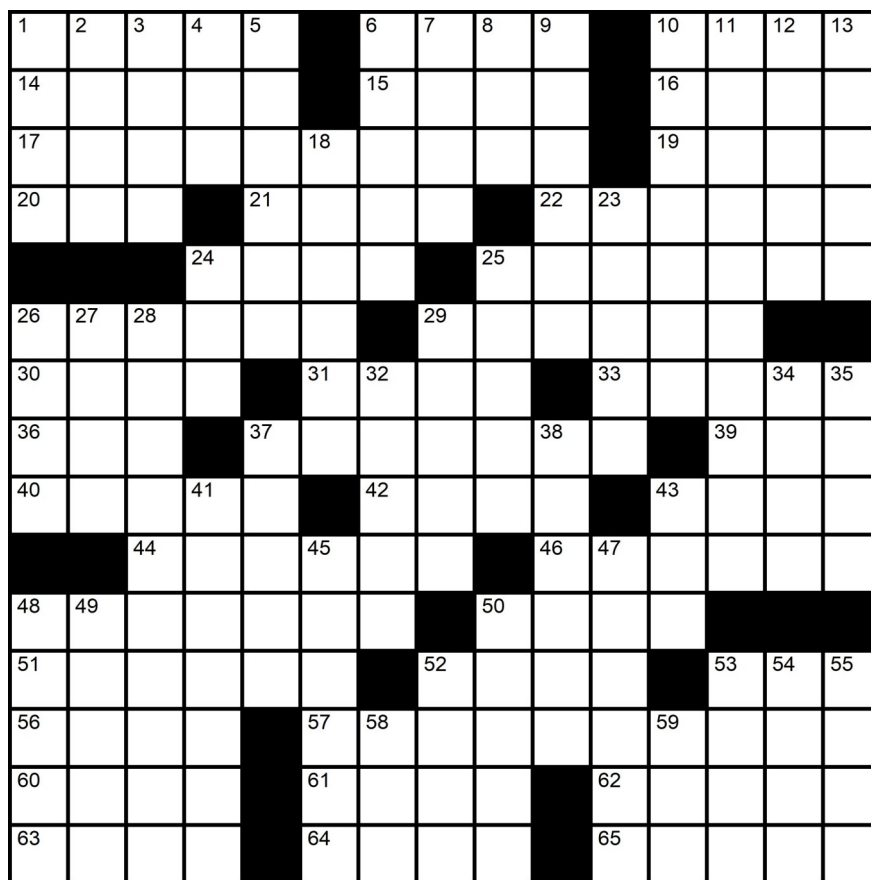Crossword by **Neville Fogarty**, Assistant Professor of Mathematics, Christopher Newport University

Across

1. Class with t-tests, familiarly
6. Words at the top of a personal agenda
10. Quite full of oneself
14. Competitor of TWA that also no longer exists
15. Noted oil cartel: Abbr.
16. Sharpen, as skills or a knife
17. Bonus bit of 0-Dimensionality?
19. Post-deuce score
20. Thing rolled in Trivial Pursuit
21. "The ____ Ranger"
22. Doc Brown's first name in "Back to the Future"
24. Shade sources
25. Store with an "Easy Button"
26. Knock down
29. "You flatter me, but you needn't go on any further"
30. Russian composer Stravinsky
31. "WKRP in Cincinnati" actress Anderson
33. Indianapolis team
36. "____ Pepper's Lonely Hearts Club Band"
37. Greek city that lends its name to a classical order of architecture
39. "I've got it!"
40. Terra ____
42. "Up ____ Five" ("xkcd" comic that explains the Saturn V rocket in basic English)
43. Auth. unknown
44. Broadway's Annie, for one
46. Glowing remains of a fire
48. Former U.K. Prime Minister David
50. Instrument to which an orchestra tunes
51. Served with milk, in French
52. Fir, for one
53. "Not on a ____!"
56. Lit ____ (college course, in slang)
57. Empty instance of 3-Dimensionality?
60. Fork feature
61. Big name in dry erase markers
62. Shore bird with a long neck
63. Long Island ____ tea
64. Way to lose, hopefully
65. Ain't right?

Down

1. Went fast
2. Uber alternative
3. Pot starter
4. ____ and feather
5. Biggie ____ (oxymoronically named rapper)
6. Bugs Bunny and Mickey Mouse, for two
7. Ron Howard's character on "The Andy Griffith Show"
8. Wild animal's lair
9. Groups of eight
10. Contents of a bottle with "lather, rinse, repeat" on the label
11. Paragon of 2-Dimensionality?
12. Bring together
13. Restroom door word
18. Citrus fruit
23. "____ Game" (game show now hosted by Alec Baldwin)
24. See : eye :: hear : ____
25. Stand out, in a good way
26. The D in CD
27. Big brand name in breakfast food
28. Lowest exhibitor of 1-Dimensionality?
29. The ____ (website that featured the satirical article "Encouraging New Study Indicates Majority Of U.S. Students Can Now Recognize Math")
32. Instrument that gave us the expression "pull out all the stops"
34. 2017 film "____: Ragnarok"
35. Comic ____ MS (much-maligned font)
37. ____ pants
38. "Jeopardy!" host Alex
41. Paid for dinner
43. President Lincoln, cutesily
45. Active area
47. Late-'90s sitcom that starred Brandy
48. Desert bloomers
49. Appropriate first name of Bond villain Goldfinger
50. "Believe It ____" (theme song from "The Greatest American Hero")
52. Cassette ____
53. Uncovered
54. Dept. with micro and macro courses
55. Camper's housing
58. Prime number between LIX and LXVII
59. The P in MPH

STUDENTS LEARNING ALGEBRA I OR NOT:

1998-2017 *(continued from page 9)*

This produces daily frustration in the student; sometimes this frustration contributes to the student acting out inappropriately or even dropping out of school. **Intervention needed!** For such students, high schools should stretch out Algebra II over three semesters or provide Algebra II workshops to supplement Algebra II classes.

Many students entered Common Core Algebra I after having taken several years of Arithmetic with calculators, as prescribed by the previous NCTM-based Maryland state curriculum. This was a trap for many students and a trap for the Algebra I teachers.

Loophole. Students graduating in 2017 and in 2018 are **not** required to pass the PARCC English Grade 10 or Algebra I tests.

Loophole. Class of 2019 students, who simply took the 2016 PARCC Algebra in Grade 9, are not required to pass the PARCC Algebra I test. They havse a transition free pass. (Same for Class of 2020, students, who took the HSA in [Pretend] Algebra in Grade 8.)

Loophole. After a student fails the PARCC Algebra I test twice, he/she may do a project. Same for PARCC English 10 test. (This was true for HSAs.) Statewide, about one in ten students were graduating using this loophole[viii]. Since the PARCC Algebra I test is considerably harder than the HSA in [Pretend] Algebra, the numbers of students using this loophole for Algebra I is likely to increase.

2017 PARCC Algebra I		
	Proficient (score 750)	**Passing 2017 (Score 725)**
Black	16%	41%
Hispanics	19%	43%
White	56%	59%

This and much other data [ix] is available from the table at http://reportcard.msde.maryland.gov/ParccHighResults.aspx? PV=78:11:99:AAAA:1:N:6:13:3:1:0:1:1:1:3&static=Y

Note that "FARM" (proxy for poverty) but not Non-FARM is on a pull down menu.

I find it more useful to disaggregate by FARM and Non-FARM as well as by race. So I did the calculations for Non-FARM:

2017 PARCC Proficient (score 750) Algebra I		
	FARM	**Non FARM**
Black	11 %	22%
Hispanics	13%	28%
White	29%	62%
Asian	45%	75%

You may find results for your county and even individual schools by using the drop down menu [Counties or Schools] at the top right of this page.
Then find and click on "Results" in right side column under:
"New Releases
PARTNERSHIP FOR ASSESSMENT OF READINESS FOR COLLEGE AND CAREERS (PARCC) Results

After it opens, you may obtain the display of the many drop down menus, by clicking on "Expand Data Navigation"

near top right corner. I then click on * Algebra I,   * 2017 All proficiencies, * All races .

Note. The state and many counties do not require students to take the PARCC Algebra II or PARCC Geometry exams.

Separately, a comparison of counties list of Algebra I results by is also available on the web [x].

I did not address the **big Questions.** What do the PARCC tests really measure? Are these tests valid?

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i This is discussed in my 2011 talk at Morgan State University Mathematics Department Colloquium;
"Pretend K-12 Mathematics Curriculum Produces Freshmen Who Know Less Algebra"
www.math.umd.edu/~jnd/Pretend_Math.pdf

ii.The MSAs on Math and HSA on Algebra were based on the National Council of Teachers of Mathematics' (NCTM) Standards of 1989 & 2000, the de-facto national semi-curriculum in Math. About 45 states, had adapted them. Virginia and the District of Columbia wisely did not. The NCTM and MD state Voluntary K-8 Math curriculum were *difficult* to teach and *difficult* to learn. They were *incoherent*.

iii. Actually two dots after some Arithmetic.

iv. http://www.marylandpublicschools.org/state board/Documents/08222017/TabG-PARCCResults.pdf

v. "Proficient" means at least met PARCC standards.

vi. Multiple Choice: A) 9   B) 81   C) 91   D) 99   E) 100
Answer is D. http://www.brookings.edu/brown.aspx

vii. http://www.marylandpublicschools.org/stateboard/Documents/08222017/TabG-PARCCResults.pdf   Note: The data on Math 7 and Math 8 are misleading since advanced Grade 7 and 8 students took Algebra, which exempted them from the Math 7 and Math 8 tests. (Slide 11 and 12)

viii. As set forth in state regulation .06E at http://www.dsd.state.md.us/comar/comarhtml/13a/13a.03.02.06.htm

ix. I had to add some numbers in the table.

x. Page 8 at http://www.marylandpublicschools.org/stateboard/Documents/09192017/TabF-PARCCAnalysis.pdf

__Jerome Dancis__ is an Associate Professor Emeritus at the University of Maryland in College Park, Maryland.

MORE NEWS FROM AROUND THE SECTION

◊ Roanoke College hosted the Virginia Sports Analytics Meeting on September 16. The meeting featured talks on diverse aspects of sports analytics and a student poster session. Participants came from seven states and created new connections in this exciting new field.

Photo on Left: Natalie Rivas, a cadet at VMI, discusses her sports analytics research with Kevin Hutson and Liz Bouzarth of Furman University

Photo on Right: Lexi Denning of Roanoke College discusses sports analytics research with Drew Pasteur of the College of Wooster and Dave Ruth of the Naval Academy.

◊ Virginia Military Institute hosted the 3rd Annual Shenandoah Valley Math Modeling Challenge (SVMMC) over the September 30-October 1 weekend. This event is 24 hours of math modeling and fun! In a nutshell, students work on answering an open-ended modeling question for 24 hours (or whatever part of that they choose!), submit an abstract describing their solution, and then give presentations in front of each other. The Challenge is a low-stress event that provides students the opportunity to use math to answer real-world questions and get constructive feedback on their writing and presentation skills.

This year VMI took first place in the competition — it was the Institute's first victory at the event! If you have any questions about the event, feel free to contact Karen Bliss at blisskm@vmi.edu.

Solution to the Crossword
by Neville Fogarty

Photo: Mu-Chi Lu '19, Hanchu Zhang '19, and Edward Olbryych '18 chose between two prompts to solve mathematically during a 24-hour competition hosted by VMI Sept 30 through Oct 1. Photo taken by Ashlie Walter.
http://www.vmi.edu/news/headlines/2016-2017/vmi-takes-first-in-math-competition.php

TREASURER'S REPORT

General Fund

Balance, March 31, 2017 $4784.33

Receipts		Expenses	
Spring 2017 Registration Fees	4291.53	Non-Section NExT Meals	3483.46
MAA Subvention	2046.00	Transfer to Project NExT	1620.00
		Transfer to Section NExT	1480.00
		Speaker Expenses	817.20
		Service Award Plaque	175.93
		PayPal Processing Fees	112.07
		Supplies	29.02
Total Receipts	6337.53	Total Expenses	7717.68

Balance, October 5, 2017 $3404.18

John G. Milcetich Student Achievement Fund

Balance, March 31, 2017 $1116.24

Receipts		Expenses	
Contributions to JGM	420.00	Student Talk Awards	225.00
MAA Book Sale	94.33	Student Poster Awards	150.00
Interest	0.30	Student Activity Supplies & Trophies	56.37
Total Receipts	514.63	Total Expenses	431.37

Balance, October 5, 2017 $1199.50

Project NExT Fund

Balance, March 31, 2017 $145.00

Receipts		Expenses	
Transfer from General	1620.00	Project NExt Fellowship	2500.00
Transfer from Section NExT	500.00		
Contributions to Project NExT	235.00		
Total Receipts	2355.00	Total Expenses	2500.00

Balance, October 5, 2017 $0.00

Section NExT Fund

Balance, March 31, 2017 $2381.86

Receipts		Expenses	
Transfer from General	1480.00	Transfer to Project NExT	500.00
		Section NExT meals	288.00
		Books for Section NExT Fellows	125.90
Total Receipts	1480.00	Total expenses	913.90

Balance, October 5, 2017 $2947.96