



California Mathematics Council Community Colleges



## President’s Message

Mark Harbison, Sacramento City College



This column is the last one that I get to write as President of CMC<sup>3</sup>. It has been a fun and rewarding two years. In addition to hosting four fabulous conferences (as usual), here are some extra-memorable moments of 2014-2015:

- Membership dues decreased from \$30-35 to \$10 per year.
- Half-price conference registration is now available both for retirees and for first-time attendees – in addition to adjunct instructors.

- We found our “collective voice” by compiling poll results for 55 of our 57 colleges [www.cmc3.org/news/IntAlgSurveyResults.html](http://www.cmc3.org/news/IntAlgSurveyResults.html) .
- Thanks to a very generous gift from Wei-Jen Harrison, we are offering a Fall, 2015 “Conference Grant” to each college, ideally to provide an opportunity for someone to attend who would not have otherwise been a part of CMC<sup>3</sup> [www.cmc3.org/conference/montereyConferenceGrant.html](http://www.cmc3.org/conference/montereyConferenceGrant.html) .
- By far, we had the best poster out of 44 entries at AMATYC’s “Parade of Affiliates” in 2014. Please see the opening photo on our home page [www.cmc3.org](http://www.cmc3.org) .

Personally, my favorite memories are from spending time with such awesome volunteers on the CMC<sup>3</sup> and Foundation Boards. I am very grateful to everyone who is listed on page 2 of this newsletter for their dedication to professional development in our field.

We are a volunteer-run organization of people *just like you* who enjoy meeting together on occasion to share ideas about improving student success in community college math and statistics classrooms. All members of CMC<sup>3</sup> will soon receive a 2016-2017 officers ballot in the postal mail (along with the “Mini-Program” flyer for



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## President's Message

(continued from front p. 1)

Monterey). Please take the time to send in your ballot before Nov. 20 so that these hard-working volunteers will be recognized and honored.

I am still collecting old CMC<sup>3</sup> documents. I have Monterey programs from all years except 1979, 1980, 1981 and 2001. You could be a real **hero** by helping to complete the collection, even with a photocopy. Please let me know. Old newsletters and Tahoe programs are also valuable.

Thanks also goes to the many fine speakers at our conferences and the volunteer presidors who keep things running smoothly. Thanks to the campus reps for distributing CMC<sup>3</sup> information to their colleagues. And thanks to all of you for attending our Monterey and Tahoe conferences. If it weren't for a good audience, then each talk would be just a rehearsal.

Thanks again for a great two years. Good luck, always.

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## CMC<sup>3</sup> Elections

Ballots will be sent by postal mail before Oct. 10. CMC<sup>3</sup> members should read [www.cmc3.org/news/2015CandidateStatements.html](http://www.cmc3.org/news/2015CandidateStatements.html) and send in your completed ballot to the address printed on the ballot before Nov. 20.

## 2015 Monterey Conference Coming Soon!

*Joe Conrad, Solano Community College*



The 43<sup>rd</sup> annual CMC<sup>3</sup> Fall Conference will be held this year on Friday and Saturday, December 11 – 12,

2015. We will be at the Hyatt Regency Monterey Hotel and Spa where we have upgraded our conference facilities. Unlike the last two years, when we had most of our activities on the lower level of the conference center, this year we will have all activities on the upper level! We will continue to enjoy the free in-room wifi and free parking and will again have the free, continuously running shuttle looping from the Hyatt to downtown for four hours Friday starting at 9 p.m. and Saturday starting at 6 p.m. Our group room rate remains the same at \$139 per night for up to double occupancy. You can make reservations online at

<https://resweb.passkey.com/go/2015CMC3>

(Note that the hotel services fee will be waived at check-in even though it may appear in the projected costs online.) If making reservations by phone, mention “CMC3 Group Rate” when calling Hyatt Passkey Reservations: 888-421-1442. For more information on the hotel, please see the hotel website at [www.monterey.hyatt.com/en/hotel/home.html](http://www.monterey.hyatt.com/en/hotel/home.html).

We are also happy to announce our first-time Travel Grant Program. This is designed for those who are new to CMC<sup>3</sup> or to our colleges. It provides free registration, one year of membership and covers one night for one half of a double occupancy room at the hotel. One

faculty person from each of our 59 colleges is eligible. Please consider sponsoring one of your newer faculty members. The deadline for submissions is Nov. 1. For more information see:

[www.cmc3.org/conference/montereyConferenceGrant.html](http://www.cmc3.org/conference/montereyConferenceGrant.html).

There is an exciting program again this year that will offer a wide range of sessions appealing to many areas of professional development and classroom interests. We return to having an Ignite! session on Friday evening. This is a series of five-minute talks given with automatically advancing slides. These talks are interesting in their own right, but adding the time factor makes them even more fun. If you are interested in giving a talk, please contact Larry Green at [drlarrygreen@gmail.com](mailto:drlarrygreen@gmail.com).

Saturday’s keynote speaker will be Erica Flapan from Pomona College who will be telling us “How I Developed My Teaching Style”. Dr. Flapan won the Mathematical Association of America’s Haimo award for distinguished college or university teaching of mathematics and is currently a Polya Lecturer for the MAA. Clearly, she has distinguished herself by her teaching and we are anxious to hear about her journey to excellence in the classroom.

Two popular fun events will be held again this year, namely, the Game Night (hosted by Pearson) on Friday night after the Ignite! session and the Estimation Run/Walk bright and early Saturday at 7:30 a.m. The full list of speakers and their titles, and other events, as well as the latest information about the conference, is available at the conference website: [www.cmc3.org/conference/Monterey15/Monterey15.html](http://www.cmc3.org/conference/Monterey15/Monterey15.html).

You should soon be getting the official mini-program and registration form via US mail. Please feel free to disseminate the information and copies of the registration form among your colleagues, both full-time and adjuncts. We are excited to see everyone in December!

## The Online Education Initiative



*By Larry  
Green, Lake  
Tahoe  
Community  
College*

The online education initiative (OEI) is up and running. Last year, the California Community Colleges

were heavily funded to create a consortium of online classes where we pool our resources to provide the best online learning environment possible. In the winter, the statewide LMS was chosen to be Canvas and NetTutor was selected as the 24/7 tutoring service for our students. All online classes will still be officially offered by the local college, but there is now a California group of faculty that provides support and advertisement for our online classes. This fall the Canvas CMS is being piloted by 8 colleges with three online courses each. One of these 24 courses is a math class, elementary statistics, which I am teaching as a Lake Tahoe Community College online class.

In order for a course to become part of the official online course exchange, it must go through a rigorous approval process where faculty Peer Online Course Reviewers (POCR players) go into the course to ensure that it is a model for best practices of online courses. This helps set standards for all courses approved for this statewide system.

A community of several online instructors from throughout California has already been formed where we share our

materials and ideas. Quizzes, videos, assignments and other resources have already been collected and put into the Canvas site, and we welcome others to add more. For the first year, statistics will be the only math course in the exchange, but then it will open up to other courses such as algebra, precalculus and calculus. If you want to join this group, e-mail me at [DrLarryGreen@gmail.com](mailto:DrLarryGreen@gmail.com).

## CMC<sup>3</sup> History Quiz, Part 4

*Mark Harbison, Sacramento City College*

1. Rearrange the letters “swell idea” to form the first and last names of the 2011 Monterey keynote speaker:  
\_\_\_\_\_ .
2. Who gave the 2010 keynote talk “A piece of pi” in Monterey? a) Judith Gabriner, b) Paul Nahin, c) William Dunham, d) John Martin, e) Jo Boaler.
3. The word “assess” was used for which three talks in 1999?
4. When was the CMC<sup>3</sup> conference held at the Asilomar Conference grounds?
5. In what year was the first Monterey Student Poster Session?

**(Answers are on page 10)**

Please consider putting one or two newsletters in the copy room for other instructors to read.



## Some Thoughts on Common Core

*Tracey Jackson, Sonoma State University*

In my capacity as a lecturer at Sonoma State University, I have been teaching classes for pre-service teachers for a few years. These courses are mainly taught using an Inquiry-Based Learning (IBL) approach and emphasize the Common Core Standards for Mathematical Practices while deepening the understanding of the content that the students are likely to encounter when teaching. In the interest of furthering some of the understanding of Common Core mathematics, I would like to share some of my experiences and observations.

In the beginning of every semester, it is an uphill battle to get the students invested. The approach is different than they are used to and they are intimidated by the expectation that they explore the ideas and present their results. There is a lot of frustration and I have to be careful with the facilitation and usually work with more scaffolded activities in the first couple of weeks, while emphasizing the importance of developing their own methods and ideas. Then a shift happens. Not all of the students engage and appreciate the process, but near the end of the first month it begins to become more of a learning community. They feel more empowered, they begin to realize that they are developing tools that may be applied to many situations. They create methods to use when puzzled by a problem and become more confident in their ability to validate their own results. I have no statistical data, just general impressions, but if one semester of one college course can help change the mindset of students who have been drilled in a traditional approach for years, imagine what is possible with children who don't start out with these preconceived notions of how a math class should work.

As far as I can tell, much of the problem with the common core approach is the use of IBL and how unfamiliar the approach is, to teachers as well as parents. If implemented well, it can be a highly effective approach. In addition to the classes for pre-service teachers, I also frequently teach a class for credentialed teachers who are looking to increase their math knowledge with the ultimate goal of adding on to their credential to teach math classes in junior high and high school. From these teachers, the general impression has been that the first year of the Common Core approach is the most difficult as students (and parents) transition to the new way of doing mathematics. After that first year, the students are comfortable with the process and they don't need to go through the same battle at the beginning of the class.

Before you form an opinion on Common Core, look into it for yourself. In my opinion, it is worth trying because I have seen some surprisingly positive results with students who were formerly intimidated by mathematics becoming comfortable with exploring ideas in mathematics themselves. A student this semester put it well when she said that she understood more about fractions in the two weeks that we have been discussing them than she did through all her years of working with them throughout the years of schooling preceding college. Some resources that I have found useful are the Academy of Inquiry Based Learning for the general approach, <http://www.inquirybasedlearning.org/>, and Illustrative Mathematics for nicely organized information about the Practice Standards and Content Standards, <https://www.illustrativemathematics.org/>.

## Through the History Glass

J. B. Thoo, Yuba College, jthoo@yccd.edu



Housekeeping: In my last column (Summer 2015), I challenged you to develop a history of mathematics course for an associate's degree at your college, and I presented the draft catalog description of the course we are developing at Yuba College. A very learned colleague rightly pointed out later that the course

we are proposing is not quite a history of *mathematics* course because it lacks any history of geometry and calculus. He proposed, instead, that what we are proposing is more of a history of *number* or *algebra* course. I cannot argue with that, and so we will be correcting our draft accordingly. Now on to the present column.

In the movie *The Littlest Rebel*,<sup>1</sup> starring Shirley Temple, the character James Henry asks the question, “Why is a shoe called a shoe?” but he is not given a satisfactory answer. In this column and the next (and possibly the following one), we shall try to answer the question, “Why is a parabola called a parabola, an ellipse called an ellipse, and a hyperbola called a hyperbola?”

According to Katz [2], two persons dominated Greek mathematics in the third and early second centuries BC: Archimedes of Syracuse (ca. 287–212 BC) and Apollonius of Perga (ca. 250–175 BC). Katz tells us that “[Archimedes] took over the ‘limit’ methods of Eudoxus and succeeded not only in applying them to determine area and volumes of new figures, but also in developing new techniques that enabled the results to be discovered in the first place... Apollonius, on the other hand, was instrumental in extending the domain of analysis to new and more difficult geometric construction problems. As a foundation for these new approaches, he created his magnum opus, the *Conics*, a work in eight books developing synthetically the important properties of this class of curves, properties that were central in developing new solutions to such problems as the duplication of the cube and the trisection of the angle.” It was Apollonius who provided us the names parabola, ellipse, and hyperbola,

<sup>1</sup>[https://en.wikipedia.org/wiki/The\\_Littlest\\_Rebel](https://en.wikipedia.org/wiki/The_Littlest_Rebel)

but conic sections were known and used before Apollonius's time. Katz tells us that “the exact origins of the theory [of conics] are somewhat hazy. One possibility is that the origin maybe connected to the problem of doubling the cube,” so we begin the story there.

The problem of doubling or duplicating the cube is one of the three great problems of antiquity, the other two being squaring the circle and trisecting the angle. On the problem of doubling the cube, Heath [1, p. 245] tell us:

Our document begins with the story that an ancient tragic poet had represented Minos as putting up a tomb to Glaucus but being dissatisfied with its being only 100 feet each way; Minos was then represented as saying that it must be made double the size, by increasing each of the dimensions in that ratio... The letter goes on to say that

‘Geometers took up the question and sought to find out how one could double a given solid while keeping the same shape; the problem took the name of “the duplication of the cube” because they started from a cube and sought to double it. For a long time all their efforts were vain; then Hippocrates of Chios [the famous mathematician, and not the famous physician] discovered for the first time that, if we can devise a way of finding two mean proportionals in continued proportion between two straight lines the greater of which is double the less, the cube will be doubled; that is, one puzzle ... was turned by him into another not less difficult...’

By “two mean proportionals in continued proportion between two straight lines the greater of which is double the less” is meant (in modern notation) lengths  $x$  and  $y$  such that

$$a : x = x : y = y : 2a.$$

This leads to the two parabolas  $x^2 = ay$  and  $y^2 = 2ax$ , and the hyperbola  $xy = 2a^2$ ; thus, the mean proportionals are the intersection of two parabolas or the intersection of a parabola and a hyperbola. Here,  $a$  would be the volume of the cube, and the cube of side  $x$  would then have volume  $2a^3$ .

By the way, the problem of doubling the cube is also known as the Delian problem. Heath [1, pp. 245ff.] explains:

[I]n a quotation by Theon of Smyrna:

‘Eratosthenes in his work entitled *Platonicus* relates that, when the god [Apollo] proclaimed to the Delians [people of Delos] by the oracle [Delphi] that, if they would get rid of a plague, they should construct an altar double of the existing one, their craftsmen fell into great perplexity in their efforts to discover how a solid could be made double of a (similar) solid; they therefore went to ask Plato about it, and he replied that the oracle meant, not that the god wanted an altar of double the size, but that he wished, in setting them the task, to shame the Greeks for their neglect of mathematics and their contempt for geometry.’

Heath informs us that “there is no doubt that the question [on doubling the cube] was studied in the Academy, solutions being attributed to Eudoxus, Menaechmus, and even (though erroneously) to Plato himself.”

(To be continued.)

Previous columns are on the Web at <http://ms.yccd.edu/history-glass.aspx>.

## References

- [1] Thomas Heath (Sir), *A History of Greek Mathematics, Volume I: From Thales to Euclid*, Dover Publications, Inc., New York (1981).
- [2] Victor J. Katz, *A History of Mathematics: An Introduction*, 3rd ed., Addison-Wesley, Boston (2009).

## The Pleasures of Problems

Kevin Olwell, San Joaquin Delta Community College

Fall 2015 Problem: Find the value of the infinite product  $P$  whose factors are

$$(n^3 - 1)/(n^3 + 1) \quad \text{for } n = 2, 3, 4, \dots$$

Summer 2015 Problem: At halftime the school band marches onto the field in the shape of a square. After some maneuvers, the band forms a rectangle with 5 more rows than the original square. How many members does the band have?

Solutions to the Summer Problem were submitted by Mark Harbison, Carlos Valencia, Paul Cripe, Betty Weiss, Fred Teti and Joe Conrad.

The solutions provided by Carlos Valencia, Paul Cripe, and Joe Conrad were similar in spirit but different in notation. Let  $r$  be the number of rows in the original formation. After reforming there will be  $(r + 5)$  rows and  $(r - k)$  columns. Comparing the number of band members before and after the maneuvers gives

$$r^2 = (r + 5)(r - k).$$

Multiply out the right side and solve for  $r$ :  $r = 5k/(5 - k)$ . Since  $k$  must be chosen so that  $r$  is a positive integer, we get  $k = 4$  and  $r = 20$ .

All are invited to submit a solution to the Fall 2015 problem either via email or US mail at the address below.

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Mark Your Calendar:

43rd Annual CMC<sup>3</sup> Conference

December 11 and 12, 2015

Hyatt Regency Monterey Hotel and Spa



## Join Us for an Informational Session & Reception

**Date:** Friday, December 11th, 2015

**Time:** 3:00 - 6:30pm

**Where:** [Hyatt Regency Monterey Hotel & Spa](#)

**Room:** Big Sur Room

**Registration:** FREE. Registration Required.

[Register Now](#)

Join us before the CMC3 Fall Conference for an informational session and reception to learn about the Carnegie Foundation Pathways — Quantway and Statway. The Carnegie Pathways have helped thousands of community college students across the country to achieve success in developmental and college level mathematics through innovative curriculum and pedagogy, and have supported hundreds of faculty with robust and sustained professional development. Statway and Quantway faculty and Carnegie Foundation staff will share what teaching and learning in the Pathways is like and their experiences being part of the Pathways community. We invite you to come explore how the Pathways could help students on your campus.



## CMC<sup>3</sup> Foundation Report

*Debbie Van Sickle, Foundation President,  
Sacramento City College*



### Scholarships and Competitions

Last spring, the CMC3 Foundation awarded a total of \$6,000 in scholarships to students attending four of our member colleges. For more information on last year's winners see the summer edition of the CMC3 newsletter <http://www.cmc3.org/Newsletters/FinalCMC3Summer15Reduced.pdf>. Early in 2016 we will begin sending application materials for our 2015/2016 scholarship competition to campus representatives (see <http://www.cmc3.org/Reps.html> for a current list of campus reps). Stop by our table at the Monterey Conference in December for more information or go to our website at <http://www.cmc3.org/foundation.html>.

During the Monterey conference, the Foundation sponsors a student poster contest that includes a \$100 cash prize for the winner. A highlight of the CMC3 Spring Conference at Lake Tahoe for the last couple of years has been a talk given by the winner of the Foundation's Student Speaker Competition. Debra Landre, a former CMC3 President, has sponsored this scholarship for the last several years, allowing us to give the winner a \$500 scholarship.

Applications for both competitions are open to any currently enrolled community college student in our region. More information about these competitions will be available on our website at <http://www.cmc3.org/foundation.html>

### Fundraising

CMC3 scholarships are only made possible because of the generosity of our members, our vendors and other contributors. Everyone who is a member of CMC3 is also a member of the Foundation. You can help us in several ways:

- Make a tax-deductible cash contribution\*.
- Donate prizes for our raffle. The value of these items is also tax-deductible\*. Donations can include (but are not limited to):
  - Wine, beer, and other libations
  - Candy, cookies and other non-perishable food items
  - Gift cards for stores, restaurants, or services
  - New items you received as a gift and can "re-gift" to us (stationary, books, t-shirts, electronics etc.)
  - New gift baskets (store bought or homemade)
  - New items we can add to other gift baskets
  - Baskets (need not be new) we can use to make gift baskets
- Help us get cash or raffle prize donations from businesses or individuals. I especially would like help reaching out to publishers and other vendors that you may have an especially good relationship with.
- Purchase lots of tickets for our raffle and encourage your friends to do so as well.

- Purchase our t-shirts and other items for sale at our table during the conferences.
- Suggest new fundraising ideas to any member of our board.

I would like to thank everyone who made generous donations of money and prizes over the last year. Without your support none of our work would have been possible.

## Welcome to our new Foundation Board member

I am delighted to announce the appointment of Tsz Yan (Paine) Ngai to the Foundation board for the remainder of the 2014/2015 term. Paine joined the faculty of Sacramento City College as a tenure-track professor in the fall of 2014 after serving as an adjunct professor for several years.

\*CMC3 Foundation is a nonprofit charitable organization under section 501(c)3 of the Internal Revenue Code. Contributions are tax deductible to the extent allowable under federal law (as long as no goods or services are provided in exchange for the donation). Our Tax Identification Number is 94-3227552. Cash donations can be made in three ways:

- At the time you register for either conference. (There is a box to check on the registration form.

Please use a separate check, but mail it in the same envelope as your registration form.)

- In person at one of our conferences, either by check, cash, or credit card.
- By mailing a check to our treasurer Rebecca Fouquette, 595 Gettysburg Drive, San Jose CA, 95123

## Answers to the CMC<sup>3</sup> History Quiz, Part 4

(quiz is on page 4)

*Mark Harbison, Sacramento City College*

1. Wade Ellis (West Valley College) gave the 2011 Monterey keynote, in addition to giving 32 years (and counting) of service to the CMC<sup>3</sup> Board in a great variety of responsibilities. His energy and talent is amazing.
2. John Martin (Santa Rosa JC) has given many, many wonderful talks for CMC<sup>3</sup>, including the 2010 keynote.
3. All in Monterey 1999: Gail Ferrell (TMCC) discussed “Assessing the AMATYC Standards”, ACT Inc. presented its “New Computer Adaptive Placement and Assessment Test“, and Mary Kittell introduced “ALEKS (Assessment and Learning in Knowledge Spaces)”.
4. Only in the first two years 1973 and 1974 did “CMC Cubed” share space with the K-12 group CMC for a Monterey conference. Ever since 1975, our membership has been strong enough to “do our own thing” independently of Asilomar.
5. The first annual Student Poster Session in Monterey was in 2010 and has been coordinated by Rebecca Fouquette every year since then.

## Math Nerd Musings



*Jay Lehmann, College of San Mateo*

In a calculus course, some students struggle with algebra concepts and others struggle with calculus concepts, but there is one subject almost *all* calculus

students crumble at the knees at the mere mention of: trigonometry. Their minds fill with of a jumble of threatening identities, right triangles, and the unfathomable unit circle.

I am teaching trigonometry for the first time in 20 years, and I'm starting to see why calculus students do not retain many of the concepts. With the textbook we are using, the unit circle method directly follows the right-triangle approach. I realize there are subtle differences between the two methods, but just beneath the surface of the unit circle method are right triangles with hypotenuses equal to 1. It is beyond me why so much fuss is made about the pros and cons of the two methods when all we really want to do is evaluate a (trig) function. Presenting both methods overwhelms students and they often cope by memorizing without understanding, which might be why many calculus students can't even evaluate a trig function. Keeping things simple and presenting just one of the two methods might serve students better in the long run.

In sum, trigonometry should be taught in ways that generalize as much as possible to algebra and increase the odds that students will remember or be able to reconstruct trig concepts.

The traditional pedagogy for graphing trig functions is even more unfortunate. Rather than discussing concepts such as translations, horizontal and vertical stretches/compressions, and reflections, which all generalize to graphing all functions, most trig texts include algorithms that do not reinforce these graphing concepts. Textbook authors and instructors reach for algorithms specific to trig functions because they think they are easier than applying the principals that generalize. Actually, I don't think they're that much easier and more importantly, avoiding the techniques that generalize means students must memorize separate techniques for trig functions and other functions. Yet more memorizing without understanding occurs. And the opportunity to reinforce the same graphing concepts in intermediate algebra, trigonometry, and precalculus is lost.

Calculus students' recall of trig identities is extremely weak. Perhaps more time should be spent having students derive foundational identities from other ones. For example, one of the few identities most calculus students do remember is  $\sin^2x + \cos^2x = 1$ . It should take them only a few seconds to divide both sides of the identity by  $\sin^2x$  or  $\cos^2x$  to find the other two Pythagorean identities. I'm sure many instructors demonstrate this or have their students do it, but perhaps this strategy should be revisited many times throughout the course. The spirit behind this could be, "You will likely forget these identities with time, but here's a way to find them." Similar steps could be taken with other families of identities. Students could be challenged to

find the minimum number of identities that can “give birth” to the other identities fairly quickly.

When teaching trigonometry, instructors reach for mnemonics such as “All students take calculus” to identify the signs of the trig functions, which is fine, but students should be able to reconstruct *why* the mnemonic is correct at various junctures in the course. This will add insurance that students can find the signs of the trig functions in subsequent courses.

Training students to see the connections between symbolic results and graphical ones can also help solidify their understanding and later recall of trig concepts.

In sum, trigonometry should be taught in ways that generalize as much as possible to algebra and increase the odds that students will remember or be able to reconstruct trig concepts.

My suggestions are not coming out of thin air. They are strategies I (and likely other professors) regularly use because my memory faculties are so weak.

We’ll know we’ve succeeded at teaching trigonometry effectively when calculus students no longer freak out at the first mention of trigonometry.



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## Calendar

October 9, 2015: IMATYC at Northwest Iowa Community College; Sheldon, IA

October 10, 2015: CMC<sup>3</sup>-South Mini-Conference, Saddleback College, Mission Viejo, CA. Contact: Maribel Lopez (310) 434-4000 x-3484, [lopez.maribel@gmail.com](mailto:lopez.maribel@gmail.com)

October 16, 2015. INMATYC Fall Conference, Ivy Tech Community College—Kokomo. Contact: Becky Pohle. Website: <http://irmc.matyc.org/>

November 19-22, 2015 AMATYC 41st Annual Conference, New Orleans, LA. Contact: AMATYC Office (901) 383-4643, [amatyc@amatyc.org](mailto:amatyc@amatyc.org)

**December 11-12, 2015: 43rd Annual CMC<sup>3</sup> Fall Conference, Hyatt Regency Monterey Hotel and Spa, Monterey, CA . Contact: Joe Conrad (707) 864-7000 x4372, [JosephConrad@solano.edu](mailto:JosephConrad@solano.edu)**

January 6-9, 2016 MAA-AMS Joint National Meeting, Seattle, WA. Contact: MAA Office (202) 387-5200, email: [maahq@ma.org](mailto:maahq@ma.org)

February 26-27, 2016: Joint Meetings of the MAA-Florida Section and FTYCMA, Saint Leo University, Saint Leo, FL. Contact: Altay Ozgener. Website: <http://sections.maa.org/florida/newsletter/callslu.htm>

March 4-5, 2016: CMC<sup>3</sup>-South 31st Annual Conference, Kellogg West Conference Center & Hotel near Cal Poly Pomona. Contact: Maribel Lopez (310) 434-4000 x-3484, [lopez.maribel@gmail.com](mailto:lopez.maribel@gmail.com)

March 10-13, 2016 28th Annual International Conference on Technology in Collegiate Mathematics (ICTCM), Atlanta, GA. Contact: Joanne Foster (800) 472-6288 or (207) 676-8688, email: [joanne.foster@pearson.com](mailto:joanne.foster@pearson.com)

April 1, 2016. INMATYC Spring Conference. Indiana University/Purdue University at Indianapolis. Contact: Becky Pohle. Website: <http://irmc.matyc.org/>

April 8-10, 2016: 2016 NYSMATYC Annual Conference, Kingston, NY. Contact: Josh Hammond. Website: [www.nysmatyc.org](http://www.nysmatyc.org)

April 13-16, 2016 NCTM 94th Annual Meeting, San Francisco, CA. Contact: NCTM Office (703) 620-9840, email: [annlmtg@nctm.org](mailto:annlmtg@nctm.org)

**April 22-23, 2016: 20th Annual Recreational Mathematics Conference, MontBleue Hotel. Contact Larry Green (530) 541-4660 ext. 341, [drlarrygreen@gmail.com](mailto:drlarrygreen@gmail.com)**

July 24-31, 2016 13th International Congress on Mathematical Education (ICME-13), Hamburg, Germany. Contact: Gabriele Kaiser, +49 40 42838 5320 x-5321, email: [contact@icme13.org](mailto:contact@icme13.org)

October 26-28, 2016 NCTM Western Regional Meeting, Phoenix, AZ. Contact: NCTM Office (703) 620-9840, email: [regconf@nctm.org](mailto:regconf@nctm.org)

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