California Mathematics Council Community Colleges

CMC³ NEWSLETTER

We want YOU to present at the 38th CMC³ Monterey Conference!
Click on: http://www.cmc3.org/conference.html to submit a proposal.
First reviews are April 1st.

THE FOURTEENTH ANNUAL RECREATIONAL MATHEMATICS CONFERENCE

Larry Green, Lake Tahoe Community College

Table of Contents

CMC³ will host the 14th annual Recreational Mathematics Conference on April 30 and May 1 this year. This time there will be a change of location, but only by less than 100 feet or so. The conference will be held in Lake Tahoe's Montbleu Resort Casino and Spa which is across the street the previous location for the Recreational Mathematics Conference. This conference is unique in that all the talks are recreational in nature focusing on applications and other mysteries of mathematics.

The conference begins at 6:30 on Friday, April 30th with an opening celebration hosted by Pearson. Then we will be dazzled by the mind blowing mathematical magic performed by mathematician and magician Alan Ackerman from the College of Southern Nevada.

On Saturday morning the conference resumes with two sessions filled with more mysterious uses, facts, and problems from mathematics. After a lunch break, prepare to be dazzled by the mathematical juggler Ron Graham. Graham, from UCSD, will demonstrate both analytically and physically how mathematics applies to the world of juggling. Two more sessions on recreational mathematics will follow Graham's talk. The final speaker will be this year's student presenter. The conference will conclude with the traditional celebration and door prize raffle.

Conference registration is $75 for members, $25 for adjunct instructor members, and $100 for non-members, ($50 for adjunct non-members). Registration will include a meal voucher of $15 toward any of the hotel's eating establishments. Full time students may register for the nominal fee of $5 which does not include the lunch voucher.

For more information, contact your department chair or CMC³ campus representative or contact Larry Green, Tahoe Conference Chair, at (530) 541-4660 x 341 or at GreenL@LTCC.edu. Conference information and registration forms can also be found on the CMC³ website.

This is a one of a kind conference that brings people back each year to enjoy the wonders of mathematics and the beauty of Lake Tahoe.

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Dreyer's Foundation Grants and Product Donations

Do you have a family member who is an employee at Dreyer's or Edy's? If so, please contact Cynthia Speed, CMC³ Foundation President (cspeed@mendocino.edu). The Dreyer's Foundation awards small grants of up to $1,000 and donates ice cream products and gift certificates/auction items to bona fide non-profit organizations for events. These proposals are reviewed on a monthly basis. For more information, please visit http://www.dreyersinc.com/dreyersfoundation/small_grants.asp

Adjunct Update

The 2010 CMC³ Spring Conference, in Lake Tahoe April 30th-May 1st, with a focus on recreational mathematics, continues to have a special price for adjunct faculty. The location has changed to MontBleu Hotel and Casino.   For more conference information, please see the website: http://www.cmc3.org/conference.html.
    While the tenure-track job prospects were bleak last year, this year appears to be more promising. If you're looking for a position, keep checking the CCC Registry for current information and consider attending the panel on hiring that will be held at the Monterey 2010 conference.
    If you have a talk that would be of interest to the CMC³ community, consider presenting at either the Monterey conference or the Tahoe conference. Potential speakers are encouraged to fill out a speaker proposal form available on the CMC³ website. In order to submit the form, choose the conference at which you're interested in speaking and there will be a link to the speaker proposal form on that page.

Meet Your New President: Always a Mathematics Teacher

Barbara Illowsky, De Anza College

Hello and Happy New Year! I am very excited to be CMC[3]'s newest President! I'd like to introduce myself. I will give you the very short "official" introduction and then a much longer history of my life as a community college mathematics instructor. If you are really interested in more details about my professional life, you can find them at: http://faculty.deanza.edu/illowskybarbara/.

The short "official" bio:
Dr. Barbara Illowsky is Professor of Mathematics at De Anza College where I have taught full-time since 1989. I have been on the CMC3 board since 1996, first as the Adjunct Advocate, then doing "Special Projects," next as "President Elect" and, finally, your President. I was the Project Director for California's Basic Skills Initiative for 2.5 years and am highly involved in Open Educational Resources. By conservative estimates, I have taught over 10,000 students, not including the community members I have reached through my weekly statistics videos that have been shown on cable television for the past 17 years and on via iTunesU for the past several years.

Life as a mathematics teacher (Maybe you see yourself in this musing!):
When my children, Rachel and twins Matthew and Rebecca, were young, they frequently sang a song they wrote. The first line of this catchy tune is "Wherever you go, there's always Mommy's students." I don't remember how old the children were when they wrote this diddle, but the lyrics seemed to ring true. We live in Cupertino, CA, but would hear "Hi, Mrs. Illowsky" from former students in a variety of places including Yosemite, Honolulu, the FBI building in Washington, D.C., Tel Aviv, and Ho Chi Minh City. Sometimes the greetings were a quick "Hi. Wow! You shop here, too?" (as if mathematics teachers never go grocery shopping or use the bathroom or …) Other times, the conversations were a bit longer, such as from former students who were a flight attendant on a flight from Alaska, the auto mechanic aligning my wheels (oh, I hope he learned well!), the pharmacist filling my prescription (ditto on the learning well), the radiologist technician who assisted in my recent surgery (even bigger ditto on the learning well), and the student who timidly approached me when my family was cooking s'mores around our campfire and wanted to know if "I was busy" and "could I please help [her] with just a few algebra problems."

As with most teachers, my "teaching" does not end when the official work day does, as if there is even an end to our work day. I live walking distance to my college, which also means that my children's public schools were all close to De Anza College. I volunteered in the elementary school classes of my children. I took American Mathematics Association of Two Year Colleges test questions for the first graders to do, including one question about five houses painted five different colors. The first graders made and colored houses and then solved the problem of the position of each house! I taught calculus conceptually and graphically to seven year-olds. With my children's high school half a mile from De Anza, I chatted with many of their classmates who took concurrent high school/college classes and/or who later enrolled at De Anza after high school graduation. Over the years, I helped the local students in K-12 with their mathematics at soccer games, fencing tournaments, field trips, and more. It was common for parents to tell their children to "go ask Mrs. Illowsky" whenever a mathematics question came up. And, very often, younger siblings of my own children's friends would approach me and boast that they knew ALL their times tables. They would then proceed to recite the "entire" times table, knowing all the way to ten times ten, which they inferred from their teachers was the final multiplication problem of the world.

As the years have gone by, the public encounters have taken on a different form. Soon, high school parents asked for advice on their children attending De Anza or to beg me to overrule a dean's position on course placement from AP tests. College students asked for help in choosing courses for the next term or getting them into closed sections of other courses. Community members would call me about any item even remotely related to the college – even on parking tickets. At local charity and K-12 events, I was often introduced as "a friend from De Anza College." As with many colleagues around the country who live in the community where they teach, I commonly find myself providing curriculum and matriculation advice, as well as free professional development in the school district. I admit it; I love it – an unofficial emissary to the community.

Now that my children are adults, I no longer have K-12 activities. I do not know the community children. I miss the "go ask Mrs. Illowsky." At the local charity events, only fellow "old timers" know me. I am out of the loop … sort of.

Two years ago, I had a plane change in Heathrow airport. In the waiting lounge I heard the familiar bantering back and forth of a father and his teenage daughter. She wanted his help on her geometry homework. Every time he tried to help her, she yelled that he was doing it incorrectly. And the father was

Call for Proposals for the Mathematics Student Speaker at the Tahoe Conference

Larry Green, Lake Tahoe Community College

At the 14th Annual Recreational Math Conference this year, one California Community College student who has investigated a topic or an application of mathematics will be honored. This student will attend the conference and present his or her findings. This twenty minute presentation will be given on Saturday afternoon and serve as the conference's finale. Last year's presentation was given by Melissa Thaw who spoke on using cross-sections to measure the volume of a shallow water aquatic region. Thanks to a generous donation from Debra Landre, instructor at San Joaquin Delta College, this year's student will receive a $500 scholarship. Student applicants must have a California Community College math faculty member serve as a mentor. Interested students can contact Larry Green at GreenL@LTCC.edu for more information. Students can fill out the online application at: http://www.cmc3.org/conference/callForStudentProposal.html They will be asked to provide their contact information, their mentor's name, a short abstract for the program, a longer abstract for the review committee, and a short biography of the student for the presider. This is a wonderful opportunity for a student, so please encourage your students to explore an area or application of math and submit a proposal.

What's Happening at Solano College

Susanna Crawford

Solano College is excited to have a new Superintendent-President, Dr. Jowell Laguerre. He has been insumental in allowing the Solano facutly to sign a three year contract, and is now working on a major reorganization of our administration. In the mean time, we are encouraged to have improved our accreditation status from "Show Cause", to "Probation".
  Joe Conrad has temporarily taken the position of interim Math/Science division dean. Susanna Crawford is the new President-Elect for the CMC3 board, as well as the conference chair for the next CMC3 Monterey conference. Corinne Kirkbride was accepted through AMATYC into the Project Access program. Dorothy Hawkes will be retiring after over 20 years of exemplary teaching and countless hours of service to our college. Genele Rhoads will be hosting a MESC conference on February 20th at Solano College. This conference will include an articulation lunch for the associated high school and community college faculty sponsored by CMC3.

Monterey Conference Wrap-Up

Barbara Illowsky, Fall 2009 Conference Chair

Woo-hoo! Our 37th annual Monterey Conference was a great success! Many thanks to our presenters, presiders, Conference Committee, vendors, CMC[3] Foundation, the Portola Hotel and Spa, our sponsors, and all of you who attended. There were many highlights of the conference. Here are just a few of them.

We had two fabulous key-note speakers. Our Friday night speaker was Dr. Paul Nahin, Professor Emeritus at the University of New Hampshire. Dr. Nahin is a prolific author of mathematics history books and presented on "When Readers Help the Author." Our Saturday luncheon speaker was Dr. Judith Gabriner from Pitzer College. Dr. Gabriner's talk was titled "Why Should Historical Truth Matter to Teachers of Mathematics? Dispelling Myths while Promoting Math." Not only were their presentations excellent, in addition, as I was able to have "quality time" individually with each of them, I found them to be fascinating, delightful people as well!

For the first time that I can remember, we had our two organization founders (Jim and Ray) and two first female Steering Committee members together at the conference: Jim Curl, Ray Wuco, Sister Clarice Sparkman, and Wei-Jen Harrison. They told great stories of the first few years of the organization. At the January Board meeting, the Board decided to preserve this history and to produce an Oral History Video of CMC[3]. You'll learn more about this project in our next newsletter.

Vendor workshops took place on Friday afternoon, before the conference. This practice will continue for the next several years. We will continue to post pre-conference workshop information on the CMC[3] web site, as we learn of them. In addition, vendors will sponsor conference parties again this year, due to the great success of the Pearson Friday night party in December.

Finally, save **Friday, December 10th - Saturday, December 11th** for our **2010 conference.** The **Speaker Proposal Form** is online and active. The first review date is April 1st. Please consider presenting, especially if you have not presented ever before or for several years.

Through the History Glass

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

The transition from a syncopated algebra (a mixture of prose and symbols) to a purely symbolic algebra was a watershed for mathematics. Not only could equations now be written more compactly, but, freed from the tangle of verbal descriptions, the structure of equations could be seen more clearly. And beyond algebra, we know that in general good mathematical notation can lead to new ideas because it makes the mathematics at hand clearer and easier, whereas poor mathematical notation can confuse.

It was François Viète (or Vieta or Vietæ in Latin; 1540–1603), a lawyer by trade, who provided "for the first time in algebra a clear-cut distinction between the important concept of a parameter and the idea of an unknown quantity" [1, p. 304]. As Boyer [1, p. 304] tells us:

> Letters had indeed been used to represent magnitudes known or unknown, since the days of Euclid, and Jordanus had done this freely; but there had been no way of distinguishing magnitudes assumed to be known from those unknown quantities that are to be found. [For example, one could not write a general quadratic equation because one could not tell in the equation $x^2 + xy = z$ (using modern notation), say, which letters represent quantities assumed to be known, and which represent quantities assumed to be unknown.] Here Viète introduced a convention as simple as it was fruitful. He used a vowel [A, E, I, O, U, or Y] to represent the quantity in algebra that was assumed to be unknown or undetermined and a consonant [B, G, D,...] to represent a magnitude or number assumed to be known or given.

So, using Viète's convention, it would be clear in the equation $A^2 + BA = G$—more likely to have been expressed verbally as "*A squared* plus *B* times *A* is equal to *G plane*" with the homogeneity of the terms maintained—that the unknown quantity is A, while B and G are assumed to be known.[1] But Viète clung to a clumsy syncopated algebra. We see this in the following example [3, p. 8] translated from Viète's *In artem analyticem isagoge* [4]:

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[1]Our convention of using the latter letters of the alphabet to represent unknown quantities and earlier letters to represent parameters—writing, for example, $x^2 + bx = c$—was introduced by Descartes without comment in his 1637 work *La géométrie* [2]. It is also here that Descartes introduced our notation for exponents.

If to $\dfrac{A\ plane}{B}$ there should be added $\dfrac{Z\ squared}{G}$, the sum will be $\dfrac{G\ \text{times}\ A\ plane + B\ \text{times}\ Z\ squared}{B\ \text{times}\ G}$.

Across the English Channel, Thomas Harriot (ca. 1560–1621), who had studied Viète, was to change the face of algebra. In his own *Treatise on equations*,[2] Harriot, in addition to using a variation of the symbol $=$ for equals that Robert Recorde had introduced in *The Whetstone of Witte*, introduced the symbols $<$ and $>$ for inequality, and the symbols $\pm$ and $\mp$ to handle several cases at once. But, according to Stedall [3, p. 90], "Harriot's most important innovation in notation was undoubtedly his use of *ab* to represent *a* multiplied by *b*, and consequently *aa*, *aaa* for what is now written a^2, a^3, etc." And with this, Harriot spawned purely symbolic algebra! So, keeping with using vowels for the unknowns (lowercase instead, but still maintaining homogeneity of the terms), Harriot would write the equation from Viète's *Isagoge* thus [3, p. 11]:

$$\frac{ac}{b} + \frac{zz}{g} = \frac{acg + bzz}{bg}.$$

As another example [3, p. 11]:

Viète: If B times G should be divided by $\dfrac{A\ plane}{D}$, both magnitudes having been multiplied by D, the result will be $\dfrac{B\ \text{times}\ G\ \text{times}\ D}{A\ plane}$.

Harriot: $\dfrac{bg}{\frac{ac}{d}} = \dfrac{bgd}{ac}$

Stedall [3, p. 11] gives one more example to illustrate the advantage of Harriot's purely symbolic algebra. Here is shown the rule for moving terms from one side of an equation to the other, which Viète called *antithesis*, terminology that Harriot kept:

Viète: *A squared* minus *D plane* is supposed equal to *G squared* minus *B* times *A*. I say that *A squared* plus *B* times *A* is equal to *G squared* plus *D plane* and that by this transposition and under opposite signs of conjunction the equation is not changed.

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[2]*Treatise on equations* is the title given by Jacqueline Stedall [3] to Harriot's undated material on the structure of polynomial equations.
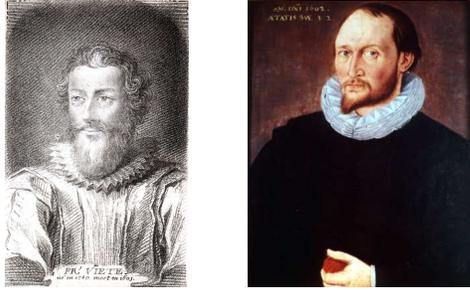
Figure 1: François Viète (left) and Thomas Harriot. (Images from the Diebner Library of the History of Science and Technology, a Smithsonian Institution Libraries Digital Collection, and Thomas Harriot College of Arts and Sciences, East Carolina University. <http://www.sil.si.edu/digitalcollections/ hst/scientific-identity/explore.htm> <http://www.ecu.edu/cs-cas/harriot.cfm>)

Harriot:

Suppose $\quad aa - dc = gg - ba$

I say that $\quad aa + ba = gg + dc \quad$ by *antithesis*.

As Stedall trumpets, "the lucidity and economy of Harriot's notation is obvious: Easy to read and easy to use, it reveals algebraic structure and acts as an aid to thinking in a way that Viète's verbal descriptions can not." With this innovative notation, Harriot was one of the first mathematicians to study the relation between the roots of polynomial equations and the coefficients of their terms.

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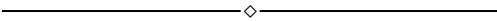
Previous columns are on the Web at <http://ms.yccd.edu/~jb2/ histglass.html>.

References

[1] Carl B. Boyer, *A History of Mathematics*, 2nd. ed., revised by Uta C. Merzbach, John Wiley & Sons, Inc., Hoboken (1991).

[2] Rene Descartes, *The Geometry of Rene Descartes*, translated by David Eugene Smith and Marcia Latham, Cosimo Classics, New York (2007).

[3] Jacqueline A. Stedall, *A Discourse Concerning Algebra: English Algebra to* 1685, Oxford Univ. Press, Oxford (2002).

[4] François Viete, *In artem analyticem Isagoge, Seorsim excussa ab Opere restitutæ Mathematicæ Analyseos, Seu, Algebrâ novâ*, apud J. Mettayer (Turonis), bnf.fr (1591). Francisci Vietæ. In the public domain at <http:// gallica2.bnf.fr/ark:/12148/bpt6k108865t>.

Sid Kolpas Wins Prestigious Hayward Award

Sid Kolpas, from Glendale College, is one of four winners of the 2010 Hayward Award. Sid has been a full-time teacher for 40 years at all levels from elementary school through university. The past 19 years, he has taught Mathematics at Glendale Community College. Sid has a BA and MS in Mathematics, and an EdD in Math Curriculum and Instruction. He has published 3 books, and over 50 articles in professional journals. At Glendale College, he has served as Academic Senate President, Academic Senate VP, and Governance Review Chair. He also coordinates the Science Lecture Series on campus. He has also been a Co-PI for 2 NSF grants, and is currently the PI for a $500,000 NSF grant to improve transfer, retention, and success among low-income, underrepresented minorities in STEM majors. Sid was selected as Glendale College's Distinguished Faculty of the year in 2004, and has won numbers national, state, and local awards in his career. After 40 years, he is still passionate about teaching, and has kept up with pedagogical and technological innovations. His hobbies include math history, computers, and antiquarian math books. Carrying on the family tradition, his older daughter Allison has a PhD in Mathematics, and is currently teaching at the University of Delaware.

In 1985 the Board of Governors of California Community Colleges, in honor of the former state Chancellor, Gerald C. Hayward, created awards for outstanding community college faculty. The awards honor community college faculty members who demonstrate the highest level of commitment to their students, college, and profession. Recipients are nominated by their local peers and selected as winners by representatives of the Academic Senate for California Community Colleges. In addition to excellence in teaching, they must have a record of outstanding performance in professional activities, as well as a record of active participation on campus.

Past Hayward Award winners include CMC3 members Peter Georjakis from Santa Barbara City College, and Edward Lodi, Denny Burzynski, and Wade Ellis from West Valley College.

CMC³ Foundation

Cynthia Speed, Foundation President

Last year, the CMC³ Foundation awarded $7,600 in CMC³ Foundation Scholarships and $1,875 in AMATYC Student Mathematics League Competition Scholarships. This year, the following eighteen colleges are eligible for student scholarships.

American River College	Hartnell College
Butte College	Mendocino College
Chabot College	Monterey Peninsula College
College of the Redwoods	Ohlone College
College of the Sequoias	Sacramento City College
College of the Siskiyous	San Joaquin Delta College
Evergreen Valley College	San Jose City College
Feather River College	Sierra College
Fresno City College	Skyline College

The Nomination Forms, instructions, and criteria are mailed to the CMC³ Campus Representative. Nomination Forms are due by April 30th, 2010 and each student winner will receive a check for $400.

The recipients of a CMC³ Foundation Scholarship must meet the following criteria:

a. Completed first semester Calculus or higher,
b. Declared Mathematics, Physical Science, Computer Science, or Engineering as a major,
c. Earned more than 30 semester or 45 quarter units and plans to transfer to an accredited college or university for the next academic year, and
d. Earned a GPA of 3.0 or higher.

The funding for our scholarships comes primarily from our member's donations, door prize proceeds, professional organizations, and business contributions. We are preparing for our spring Mathematics Conference at Lake Tahoe and are seeking donated items for our Scholarship fund-raising activities. Please contact any of the Foundation Board members if you have any prizes, puzzles, books, or items that you wish to donate for our drawing. The Foundation Board members for 2010 are Rebecca Fouquette, Larry Green, Wei-Jen Harrison, Debbie Van Sickle, and Cynthia Speed.

We are deeply grateful to all of our Donors and acknowledged last year's 2008-2009 donors by personal letter and in the Monterey Conference Program. This fiscal year, the donors from July 1st, 2009 until January 30th, 2010 are Charles Barker, Edward Braunhut, Susanna Crawford, Guy DePrimo, Noelle Eckley, Wade and Jane Ellis, Richard Hansen, Marcella Laddon, Tina Levy, Gary Ling, Anita Maxwell, Cynthia Speed, Cynthia Stubblebine, Janet Tarjan, Randy Taylor, Frederick Teti, Allyn Washington, and Raymond Wuco. Please consider joining this list of Donors by completing the attached Donation Form and mailing your donation to Rebecca Fouquette at Santa Rosa Junior College.

CMC³ Past President, Debra Landre, has donated funds to support a Student Speaker Scholarship at the CMC³ Lake Tahoe Spring Conference. Applications, instructions, and selection procedures are available on our CMC³ website, http://www.cmc3.org .

CMC³ was founded in 1972 and we were honored to have four of the founding members at our 2009 Monterey Conference. Sister Clarice Sparkman is 92 years old and helped us at the Foundation Booth all day on Saturday. Ray Wuco is one of two math faculty who originated the idea of forming the organization CMC³ and he also helped us at the Foundation Booth on Saturday. Wei-Jen Harrison continues to serve on the CMC³ Foundation Board as a dynamic, energetic, and fabulous fund-raising pro. Jim Curl is one of the two math faculty members who had the idea of forming a mathematics organization for Community College mathematics faculty. Jim recently served on the Foundation Board and continues to support our fund-raising activities.

The Foundation relies heavily on your generous donations to fund scholarships. Please consider making a donation to the CMC³ Foundation Scholarship Fund so that we can continue to honor our most gifted, talented, and deserving students. Whether your donation is $5, $10, $25, $100, or more, we thank you for your continued support. Contributions are tax deductible, as provided by law, and our Taxpayer ID number is 94-3227552. Please complete the attached donation form and mail your donation to

Professor Rebecca Fouquette
Santa Rosa Junior College
Mathematics Department
1501 Mendocino Avenue
Santa Rosa, California 95401

Please accept my donation payable to CMC3 Foundation in the amount of:

$10___ $20___ $50___$100 __ Other:_____

Name_____

Address_____

City_____

College or Company_____

Meet your 2010 and 2011 CMC³ and CMC³ Foundation Boards!

Barbara Illowsky, CMC³ President

The new CMC³ and CMC³ Foundation Boards took office on January 1st. Each position carries a two-year term until December 31, 2011. Let me introduce the new and not-so-new, but maybe new-to-their positions, members.

New to the Board this year are Rebecca Fouquette and Katia Fuchs. Rebecca is our new treasurer, taking the position held by Jim Spencer for several years. She has been teaching at Santa Rosa Junior College for two years. She previously taught at Willow Glen High School and at Cal Poly, San Luis Obispo. Rebecca has always been involved with the department, professional organizations and clubs at her college, so it was a logical next step to join the board of this state organization to further her service to the discipline. Outside of mathematics, Rebecca raises dachshunds (wiener dogs). Katia is our new Awards Chair. Katia is an adjunct faculty member at Solano College. We look forward to Rebecca and Katia on the Board!

Our CMC³ Foundation Board members are President Cynthia Speed and members Debra Van Sickle, Wei-Jen Harrison, Larry Green and Rebecca Fouquette. Cynthia teaches at Mendocino College. This is her third stint for CMC³. She was a Member-at-Large for two years twice: 1980-81 and then 24 years later in 2004-05. Cynthia has been our fabulous Foundation President since 2006. Debra teaches at Sacramento City College. She is starting her second term on the Foundation board. Debra has not missed a CMC³ Monterey conference since she started working at Sac City in 1990 and decided two years ago that it was time she started helping. Debra is the extremely proud and happy grandmother of beautiful Rebecca Louisa Fromer, now 8 months old. Wei-Jen Harrison is one of our CMC³ early-bird members, serving on the Board from 1973 (when she was 3 years old!) through 1977. She joined the Foundation Board two years ago.

Larry Green is our new Past-President, Webmaster, Tahoe Conference Chair, and member of the Foundation Board. He teaches at Lake Tahoe Community College
Larry has been on the Board for 9 years in a variety of positions (along with the above mentioned ones): Member-At-Large, Awards Chair, Tahoe Speaker Chair, Monterey Conference Chair, President Elect, President. In whatever free time he has, Larry enjoys circumnavigating Lake Tahoe either by paddling or biking. Susanna Crawford steps up as President-Elect and Monterey Conference Chair. Susanna has been on the Board since 2005 as the Awards Chair and Campus Reps Chair. When she is not working, I most enjoy spending time with my two teenage children or gardening. Greg Daubenmire is continuing on as Secretary. Greg teaches at Las Positas College. Greg's previous Board position was as the Adjunct Advocate from 2002-2007.

Our four Members-At-Large are Tracey Jackson, Marcella Laddon, Steve Blasberg, and Michael Eurgubian. They are all continuing Board members. Tracey Jackson is an adjunct instructor at Santa Rosa Junior College. This is her third year as Adjunct Advocate. She is on the Board because she enjoys working with the other people on the Board and being involved in mathematics outside of the classroom, as well as inside the classroom. In her free time, you might find Tracey face-painting, gardening, and painting. Marcella Laddon teaches at Cabrillo College. She joined the Board in 2004. Marcella started out as the liaison for CMC and then became the Tahoe Conference Speaker Chair. She also served as West VP for AMATYC. In warmer weather, you can find Marcella swimming in the ocean. Steve Blasberg has been a Member-at-Large since 1996 because of his personal obligation to the profession. Steve also writes the questions for the AMATYC student and faculty contests. Occasionally, you might hear Steve playing the trombone with the Stanford Band and its university athletic events. The fourth Member-at-Large, Michael, has been teaching at Santa Rosa Junior College for over 30 years. He has been active in CMC³ for 20 years, including serving as Treasurer, President, Member at-Large, as well as chairing numerous conferences both at Tahoe and Monterey. For the past 6 years, Michael has been preparing and hosting a trivia contest at a local Irish Pub.

Now for your remaining Board members… Jay Lehmann of College of San Mateo has been on the Board for 8 years, all as newsletter editor. He joined to give back a little after all he has received through attending our wonderful conferences over the years. Jay assembles the newsletter, founded and facilitates the estimation run event, and plays in a rock band called the Procrastinistas. They perform at clubs in San Francisco. Jenny Freidenreich teaches at Diablo Valley College, where she's taught full-time since 2002. She has served on the Basic Skills Initiative Task Force at DVC and remains committed to improving Developmental Education programs and curriculum. Formerly a high school mathematics teacher, she has served as the CMC liason since September 2008, and enjoys the energy and enthusiasm of math teachers in California. Jenny can often be spotted hiking the Oakland hills with her dog, Bailey, and taking in a great sunset. Joe Conrad has been our membership chair for two years. He enjoys contributing to CMC³ in this capacity because it allows him to be involved in this wonderful organization. He teaches at Solano Community College although he is currently the Interim Dean of the Math/Science Division. Joe has three children and in three years they will all be in college at the same time! Mark Harbison has been Business Liaison CMC3 since 2004 and was Newsletter Editor for CMC³-South for 6 years before that. Mark has taught at Sacramento City College since 2002 and wrote a textbook on Introductory Statistics. His favorite sport is disc golf. Last, but certainly not least, are two former CMC³ presidents: Rob Knight and Wade Ellis. Both of them have served in a variety of positions, but are now Hotel Negotiations and Speaker Chair, respectively, for the Monterey Conference. And, then, there's me, your new CMC³ President. You can learn about me in another article.

Brain Strain

Joe Conrad, Solano Community College

This issue's problem is easy to understand; I hope you find it easy to solve! The problem is: If a, b, c are odd integers, then the roots of $ax^2 + bx + c = 0$ cannot be rational numbers.

Last issue's problem was: Let f be a continuous function defined on [0, 1] with $f(0) = f(1) = 0$. We call the real number h a chord for f if there is an x in [0, 1] with $f(x + h) = f(x)$. Prove that 1/5 is a chord for any such f. Can you generalize your result? I received solutions from Paul Cripe, Larry Green, Tom Grube and Frank Soler. Let $g(x) = f(x + 1/5) – f(x)$ for x in [0, 4/5]. Since $g(0) = f(1/5)$, $g(1/5) = f(2/5) − f(1/5)$, etc., by adding we can conclude that

$$g(0) + g(1/5) + g(2/5) + g(3/5) + g(4/5) = 0.$$

This implies that these values cannot all be negative or all positive. Since g is continuous, $g(x) = 0$ for some x in [0, 4/5]. Thus 1/5 is a chord. It's clear that this argument would work for $1/n$ for any natural number n. Obviously, 0 is a chord. It turns out that this exhausts the possibilities for chords that work for all functions of the given type. Indeed,

if we let $f(x) = x - \dfrac{\sin(ax)}{\sin(a)}$ where $a = \dfrac{2\pi}{h}$ and h is not

$1/n$ for any natural number n, we can check that the conditions on f are satisfied yet
$f(x + h) = f(x) + h \neq f(x)$.

Send solutions to:

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Meet Your President

(continued from p. 3)

yelling back that if she had paid more attention in class, she wouldn't have needed to bring her homework on vacation. The girl was near tears. I could envision them 20 years from now, the then grown woman would be telling her own children how mathematics ruined her family vacations. I knew I had to intervene.

"Excuse me," I said. "Maybe I could help your daughter. I'm a mathematics professor." For the next 20 minutes, I explained side-angle-side and a few other theories and rules. She solved a few problems on her own and finished her homework. Her vacation was saved!

Last year, I was flying to Maui with my family. I saw a familiar *Intermediate Algebra* book by K. Elaine Martin-Gay and some homework papers sitting in the serving area. I started chatting with the flight attendant, a lovely woman in her forties. Susan told me that she was taking the course online through Moorpark College. She took the Elementary Algebra class the same way and loved it. She loved Elaine's videos, the immediate assistance she received from her instructor, and the fact that she could do her homework on her frequent Los Angeles/Maui route. A bit later, Susan asked me if I would please help her. We spent the next half hour factoring polynomials and reducing complex fractions. I was in heaven.

For the past eight years, I mostly did not teach full-time. Instead, I served on several local, state and national committees, then was the statewide Project Director for California's Basic Skills Initiative, and also served on the statewide Academic Senate Executive Committee. I missed the day-to-day interactions with students. This past fall, I returned to full-time teaching. I am rejoicing in the sense of pride my students have when they realize that they are not "stupid" in mathematics and can absolutely master this material. I am enjoying the routine of teaching. And, I am loving seeing students wave to me as I walk across campus.

Math Nerd Musings

Jay Lehmann, College of San Mateo

In 2007, after writing textbooks for 12 years, I thought I would step out and try writing a fiction novel for children. Something like the scary-book series *Goosebumps* I'd been reading to my son for so long. I mean, how hard could it be? I cranked out a rough draft in only a couple of months. But by attending a conference on writing, I learned that my characters were one dimensional, my story needed motivation, my dialogs were too "on the nose," and my story lacked voice. On the nose? Voice? Even though I had no idea what the jargon meant, let alone how to fix the problems, one thing was clear: my story stunk and I needed help.

So I got to work trying to learn the craft. I read books about writing, attended several writing conferences, sought help from an English professor, and joined three critique groups. I also increased my rate of reading for pleasure from about a book per year to about a book per month. I've learned a lot from all of these forms of support. I even hope to know what I'm doing in another five to ten years.

It was scary to seek help. I pictured snooty librarian types deriding me for the evils I'd impinged on our sacred English language. Wow, was I wrong. Turns out that even gifted writers are sensitive to the challenges of writing and are quite supportive.

But there was one unconscious assumption I'd made that proved to be true: there are more women in the field of writing than men. This includes writers, literary agents, and editors. For example, I just attended the San Francisco Writers Conference at the Mark Hopkins Hotel during President's Weekend. About 250 writers met to learn about the craft. There was a 2:1 ratio of women to men. And this ratio held true also for presenters, for literary agents, and for editors.

Why is this? Is it a matter of abilities? Interest? Social conditioning?

Most striking is that at one presentation an agent flat-out said that if you want to write for young adults (ages 13 to 20), you'd better have a female protagonist. Why? Because male teenagers don't read for pleasure. To be fair, many female teenagers don't read for pleasure either. It's just that the minority of teenagers that do read for pleasure read quite a bit, and they are almost all female.

Now, had I heard this statistic three years ago, I don't know if it would have depressed me as much. Probably because I didn't read for pleasure when I was a teenager. Well, I did read the Tolkien series and *Zen and The Art of Motorcycle Maintenance.* So, that put my adolescent reading rate at about a whopping half a book per year. But after reading some fantastic books for middle-grade and young-adult readers in the past three years, I've realized how much I missed out by hardly reading anything as a teenager. Even now as an adult, these books expand my horizons on many levels. I'm learning about other lifestyles and other perspectives. I'm also learning how to write.

To think that most teenagers aren't reading is really sad. To think that practically no male adolescents read is even worse. This really hits me hard because my son Dylan will turn 12 this May. I can count the number of books he's read for pleasure on one hand. I've managed to pull off still reading with him just before bedtime; we take turns reading to each other. He protests that he's too old for this now, but each time I simply say that *I* want to read with him because *I* want to hear the story, which is true. I'm not sure for how much longer he'll put up with our reading sessions, but I'm pretty sure that once we stop, he won't be reading anything for fun for a *long* time.

Why don't male teenagers read? Agents are quick to say that it's because of the competition of video games, YouTube, television, and sports. Perhaps. But is this the entire reason?

Now, given that I teach mathematics, you know where I'm going with this.

Why are more men than women involved in math and science? Or is that even true anymore? In 2009, three women were awarded Nobel Prizes in science. In the same year, a significant number of women were hired as CEOs of large U.S companies. It is interesting to note that several of these women have science backgrounds. Currently universities are reporting marked increases in female enrollment in science, engineering, and math degree programs. And the National Academy of Sciences reported that girls in the U.S. have now reached parity with boys in mathematical achievement.

Despite these advances, there is still room for growth. Fewer women major in science, engineering, and math than men. And there are far fewer women who earn Ph.D.s in math or science than men.

As far as degrees in mathematics goes, the issue feels largely out of my hands. After all, how many students at my college major in mathematics? However, I just checked my second-semester-calculus roster and was surprised by two things. I actually have three students majoring in mathematics. If memory serves, this is a record. Even more strikingly, all three students are women.

This prompts me to wonder what I can do to insure that these three students succeed. Acknowledge them for their worthy aspirations? Say an encouraging word? Tell them about the MESA program in our district? Help them line up scholarships? Or, are these students already well on their way, without need of intervention?

In some ways I envy English professors. Even if teenagers who read for pleasure are in the minority, they are certainly a much larger group of adolescents than those who solve math problems for fun. However, as far as righting gender imbalances go, at least we mathematicians can present genderless exercises, whereas an author must commit their protagonist to being a woman or man.

One can only hope that someday there will be just as many women earning Ph.D.s in mathematics as men. And that male teenagers will crack open books to read for fun. In the meantime, maybe Dylan will break the odds and discover the joy or reading. Who knows? Miracles do happen. And if 13 is the bewitching benchmark, he's still got 15 months to make the discovery, practically a lifetime in the landscape of an 11-year-old who still puts up with reading with his dad.

Calendar

March 5-6, 2010 CMC³-South Conference. Contact: Patty George, pgeorge@cerritos.edu

March 5-7, 2010 Teachers Teaching with Technology, Atlanta, GA. Contact: Renee Hartshorn, (888) 282-8233, email: rhartshorn@ti.com

March 11-14, 2010 ICTCM Conference, Chicago, IL. Website: http://www.ictcm.org/

March 25-27, 2010 35th Annual IMACC Conference, Allerton House & Conference Center, Monticello, IL. Contact: Rodger Hergert, r.hergert@rockvalleycollege.edu.

April 9, 2010 NEBMATYC Meeting. Northeast CC, Norfolk, NE. Contact: Stacey Aldag, stacey@northeast.edu.

April 9, 2010 NEMATYC Conference, MassBay CC, Wellesley, MA. Contact: Meredith Watts, mwatts@massbay.edu

April 16-17, 2010 TMATYC Annual Meeting. Cleveland State CC, Cleveland, TN. Contact: Angela Eerett, angela.everett@chattanoogastate.edu

April 16-18, 2010 NYSMATYC Meeting, Ithaca, NY. Contact: Timothy Grosse, tgrosse@sunyjefferson.edu

April 21-24, 2010 NCTM 88th Annual Meeting, San Diego, CA. Contact: NCTM Office (703) 620-9840, email: annlmtg@nctm.org

April 30-May 1, 2010 CMC³ 14th Annual Recreational Math Conference, MontBleu Resort Casino and Spa, South Lake Tahoe, NV. Contact: Mike Eurgubian, (707) 778-2474, email: meurgubian@santarosa.edu

July 11-16, 2010 8th International Conference on Teaching Statistics (ICOTS-8), Ljubljana, Slovenia. Contact John Harraway, email: jharraway@maths.otago.ac.nz

November 11-14, 2010 AMATYC 36th Annual Conference, Boston, MA. Contact: AMATYC Office, (901) 383-4643, email: amatyc@amatyc.org

December 10-11, 2010 CMC³ 38th Annual Conference, Portola Hotel and Spa, Monterey, CA. Contact: Barbara Illowsky, (408) 864-8211, email: illowskybarbara@deanza.edu

Jay Lehmann

Editor

CMC³ Newsletter

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