

News from the South C's

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Upcoming Events:

- CMC³-South Twenty-fourth Annual Conference
March 6-7, 2009, Anaheim, CA.
- CMC³ 13th Annual Recreational Mathematics Conference, April 24-25, 2009, South Lake Tahoe, CA
- CMC³ 37th Annual Fall Conference, Dec. 10-12, 2009, Monterey, CA.

From the President's Desk

Members of CMC³ South and math faculty of southern California:

As we begin the year, 2009, I want to welcome you all back from your holiday break. Even though the California budget looks bleak, I am hoping the you will find the funds to attend the best mathematics conference for community college faculty in southern California. Our conference will still be during the first weekend in March, the 6-7th at the Doubletree in Orange. Patty George, conference chair, has done a wonderful job finding speakers to fill your day with new knowledge and inspiration. You can select sessions on topics such as using CPR in your classroom, Geometry via Apollonius, the Basic Skills Initiative, teacher preparation sessions, a new Statistics software, using the TI-Nspire to make Learning Objects, or Public-Key Cryptography just to name a few. Be sure to join us on Friday evening for UCI's Don Saari's enlightened talk on why our voting outcomes can be so bad! Patti has also asked Bob Stein from CSUSB to be our keynote speaker who will be sharing information on Geert Hofstede's work on cultural differences and its implications in the mathematics college classroom.

Be sure to ask a colleague to join you this year at our 24th conference. I know you will enjoy all our activities. CMC³'s annual spring conference is definitely a "must" attend event! I hope to see you on March 6 and 7, 2009.

Here are just a few reminders on how to reduce the cost of the conference. If you drive to the conference, be sure to share a ride with one or more faculty from your school. If you want to spend Friday night at the hotel, share your room with another colleague.

Carol Murphy
CMC³-South President

Robert George Stein

Keynote Speaker-CMC³-South Saturday, March 7, 2009

Recognized as a leader in the studies of the history of mathematics and mathematics education, as well as for being a leader in the study of international education and for his service to international education efforts, we are proud to have Dr. Robert Stein as our keynote speaker on Saturday, March 7.

Dr. Robert Stein's career traces a journey of service and of international cooperation, a path that inspires thought and action. From his work with Operation Crossroads Africa (an organization described by President John F. Kennedy as a "progenitor of the Peace Corps") in the 1960's to his work at the Ethical Culture Schools in New York City, to the Academy La Castellana in Caracas, Venezuela, and to the California State University in San Bernardino, and then to his work at the National Science Foundation in Washington, DC, Bob Stein has encouraged, taught and inspired students, teachers and advocates for mathematics education. His experiences and his interests are diverse and intriguing.

One of Robert Stein's current interests is that of the pioneering work of Geert Hofstede concerning cultures and cultural differences. While Hofstede's work is extensively used in the world of business, its application to mathematics education has not yet been fully recognized in the US. As Dr. Stein's keynote address, he will introduce Hofstede's work and discuss its implications for mathematics education. The discussion will address implications both to those in classroom level teaching and to those in the larger public policy arena. As part of this discussion, he will include examples from the infamous "math wars," that struggle between traditionalists and reform oriented educators in mathematics. Dr. Stein plans to include time for discussion and opportunities to share personal experiences.

Please join us on March 7 to share lunch and the keynote presentation by Dr. Robert Stein.

CMC³-South
 Twenty-fourth Annual Conference
 March 6-7, 2009

Doubletree Hotel Anaheim/Orange County

Please visit our website, www.cmc3s.org, for up-to-date information about the conference.

The conference site is the **Doubletree Hotel Anaheim/Orange County**. The guaranteed conference room rate is \$111+10.1% tax for single or double occupancy. Overnight guests belonging to our group also receive a discounted parking rate.

Hotel reservations can be made on-line or by phone.

The URL for reservations is:

<http://doubletree.hilton.com/en/dt/groups/personalized/SNACCDT-CA9-20090301/index.jhtml>

To make a reservation by phone, call the hotel directly at 714-634-4500 or use the Central Reservations System at 1-800-HILTONS. **Be sure to mention California Mathematics Council Community Colleges -- South.**

**Free Friday Evening Refreshments at 6 PM
 Followed by an Exciting Keynote Presentation at 7 PM by**

Dr. Donald Saari

UCI Distinguished Professor: Mathematics and Economics

*We Vote,
 We Make Decisions;
 Why Can the Outcomes be so Bad?*

Professor Saari will use examples to show how bad the situation can be. Then he will introduce the mathematical ideas to explain why election and decision outcomes need not reflect what was intended. This presentation will be prepared for a general audience.

The Saturday Program

On Saturday the conference begins at 8:00 a.m. with registration and a continental breakfast. The breakout sessions begin at 9:00 a.m. and address a spectrum of topics of interest to community college mathematics instructors. Topics include developmental math, teacher preparation, statistics, applications, computer and calculator technology, and more. Commercial exhibits and software demonstra-

Continued on page 3

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are available throughout the day in the publisher's area. The last breakout sessions end at 3:30 p.m., followed by a post-conference social event with refreshments and valuable door prizes.

Lunch will be held from 11:45 AM – 1:45 PM

Luncheon Keynote Speaker

Dr. Robert George Stein

Professor Emeritus, Mathematics

California State University, San Bernardino

Mathematics, Teaching, and Culture

Dr. Robert Stein is a recognized leader in the studies of the history of mathematics, mathematics education and international education. He will speak about mathematics, teaching and culture, with particular focus on the pioneering work of Geert Hofstede. Bob Stein will introduce Hofstede's work and discuss its implications for mathematics teaching both at the classroom level and in the larger arena of public policy.

There may still be room in the Saturday schedule for **Presenters**. If you would like to present, please contact Patty George:

Phone: 562-860-2451 X2670 E-mail: pgeorge@cerritos.edu

If you would like to be a **Presider**, please contact Sherri Wilson:

Phone: 909-389-3336 E-mail: swilson@craftonhills.edu

For questions about registration, contact Mark Greenhalgh:

Phone: 714-992-7042. E-mail: mgreenhalgh@fullcoll.edu

See page 4 for conference registration form.

**CMC³-South Twenty-Fourth Annual Conference
March 6-7, 2009**

Advance Registration must be postmarked by February 23, 2009

Last: _____ First: _____ M.I. _____

College/Affiliation: _____

Mailing Address: Street: _____

City: _____ State: _____ Zip: _____

Preferred Phone: (____) _____ work home cell

Email: _____

Please use a separate form for each registrant. Copy this form freely.

Friday:

The Friday evening reception/entertainment is free.

Please **note here** the number in your party who plan to attend the Friday Evening reception/entertainment: _____

Saturday:

Registration and Membership:

Attending the conference, annual membership is included:

Advance Registration, postmarked no later than
February 23, 2009 **\$ 90**

Lunch included:
Vegetarian _____ Non-Vegetarian _____

Late **on-site registration** (lunch only if available): **\$120**

Not attending the conference, annual membership: **\$ 20**

I wish to make a tax deductible contribution

to CMC³-South: \$ _____

Total amount included: \$ _____

Make check payable to **CMC³-South**

Return advance registration to:

**Mark Greenhalgh
Fullerton College
321 E. Chapman Ave.**

Fullerton, CA, 92832

Math in the News

By: Bruce Yoshiwara, Los Angeles Pierce College

One nice feature on the Mathematical Sciences Digital Library (mathdl.maa.org) homepage is *Math in the News*. There you can find a snippet of a news item of interest to mathematicians and math educators, with a link to more details and the name of the source.

Math in the News is updated five times a week. Examples of December 2008 articles include “Mathematics of Invisibility Cloak Made Plain” (December 5, source: *EE Times*), “Math Scores Rise When Teachers Get Wise” (December 18, source: Johns Hopkins University), “TV Episode Exploited Link between Math and Music” (December 22, source: *Popular Mechanics*), and “Much Ado About Zero” (December 24, source: *Washington Post*).

You can get *Math in the News* automatically sent to your email account. Go to <http://tinyurl.com/MathDL-rss> and fill in your email address.

But if you maintain a webpage or teach using a Learning Management System (like Moodle or Blackboard), you can do even better: *Math in the News* can be automatically updated on your webpage! A single line of javascript is needed to get the automatic updates, and you don't even have to know any javascript.

Math in the News has an RSS (Really Simple Syndication) feed. You can use the free Google Gadget called “Simple rss reader 1.1” (or you can use any of numerous other free gadgets which you can find by googling “rss to javascript”) to create the script for you. Go to the gadget site and fill in the address of the *Math in the News* rss feed (<http://mathdl.maa.org/rssfeeds/?feedType=news>). The gadget provides javascript code that you can copy and paste into the source code of your website or LMS page.

As an example of how this might appear, go to www.cmc3s.org/MAA-AMATYC/. The first two bullets are from *Math in the News*, both provided by the same line of javascript—the gadget provides you with the option of customizing how much of the rss feed will appear on your webpage.

For the Students of CMC³-South

Bob Crise, Crafton Hills College

If you would like to bring students to CMC3-South Twenty Forth Annual Spring conference, March 6-7, 2009, CMC³-South has ten student waivers (two per college) available to the first ten students who apply by filling out the application below or emailing Bob Crise at rcrise@craftonhills.edu. Colleges may bring more than two students to the conference, but the students will be required to pay \$45.00 to cover the cost of lunch on the seventh of March.

CMC3-South's Student Registration Waiver for the Twenty Forth Annual Conference (Please print all information legibly!)	
Student's Name	
Student's College	Name of the math instructor responsible for the student at the conference:
Math instructor's email address:	
Please return this form to: Robert D. Crise, Jr. Associate Professor of Mathematics Crafton Hills College 11711 Sand Canyon Road Yucaipa, CA 92399-1799	

Got History?

By Manuel López, Cerritos College

Some of the fondest memories of my years as a student at East LA College are from the math classes I took with Professor Roger Debelak. He had a way of seamlessly infusing historical tidbits into his lectures that made his presentations simply memorable. I can still picture Carl Gauss, as a young boy, placing his slate face down on the teacher's desk, with a single number, 5050, scribbled on it, right after his teacher had assigned to the class the tedious task of adding the first 100 natural numbers. Today, although my knowledge of history is comparatively limited, I strive to emulate the example set by my dear professor. As a result, I have developed a knack for using bits of history, sparkled with a little drama, as a motivational tool. Judging by the comments I have gotten from my students, my efforts have been effective in promoting interest in mathematics.

Allow me to share an example.

On the day I introduce the Cartesian plane to my pre-algebra students, I always begin with something like this:

For centuries, the world of mathematics was divided into two groups that did not communicate well with each other. In one group, we had the mathematicians that studied geometry, and in the other, we had those that studied algebra. But in the 1600s, an amazing invention changed all that: the Cartesian plane. An invention so simple that I can honestly say that if I'd been around in those days, today you might be learning about the Lopezian plane. An invention so powerful that it changed the course of history in dramatic ways. An invention that allowed the marriage of algebra and geometry, and in doing so, it set the stage for an explosion of new ideas and discoveries. To give you an idea of what I mean, consider this: Within 100 years of the invention of the Cartesian Plane, we had calculus, and within 300 years, humans were walking on the moon.

I then tell them the story of a Rene Descartes laying on bed and the fly walking on the ceiling. Finally I draw a coordinate plane on the board, and we go on. Delivered with the right mixture of enthusiasm and reverence, with the appropriate hand gestures and brief pauses for dramatic effect, a simple introduction like this has provided me with an audience eager to give me twenty minutes of their undivided attention.

We, math teachers, are fortunate to teach a subject matter saturated with fascinating characters and events, and I think it is to our detriment and that of our students not to bring these elements into our lesson planning. What is more, with current resources such as Google at our disposal, the time required to find relevant information is no longer prohibitive.

It is worth mentioning that the absolute accuracy of the historical "facts" I share with my students is not a top priority. They are meant simply to spark interest in mathematics by bringing to my students' attention the human element that sometimes is lost in the midst of equations and theorems. I have no interest or time to discuss all the elements and people that lead to the birth of analytic geometry. I do not really know if the story about the fly on the ceiling is true, but it is part of the lore of mathematics, and it is interesting.

Here are some of the “facts” that I have dramatized for my students over the years:

The drowning of Hypasus by the brotherhood of Pythagoreans for revealing to the world the existence of irrational numbers. [Talk about taking your math very seriously!!]

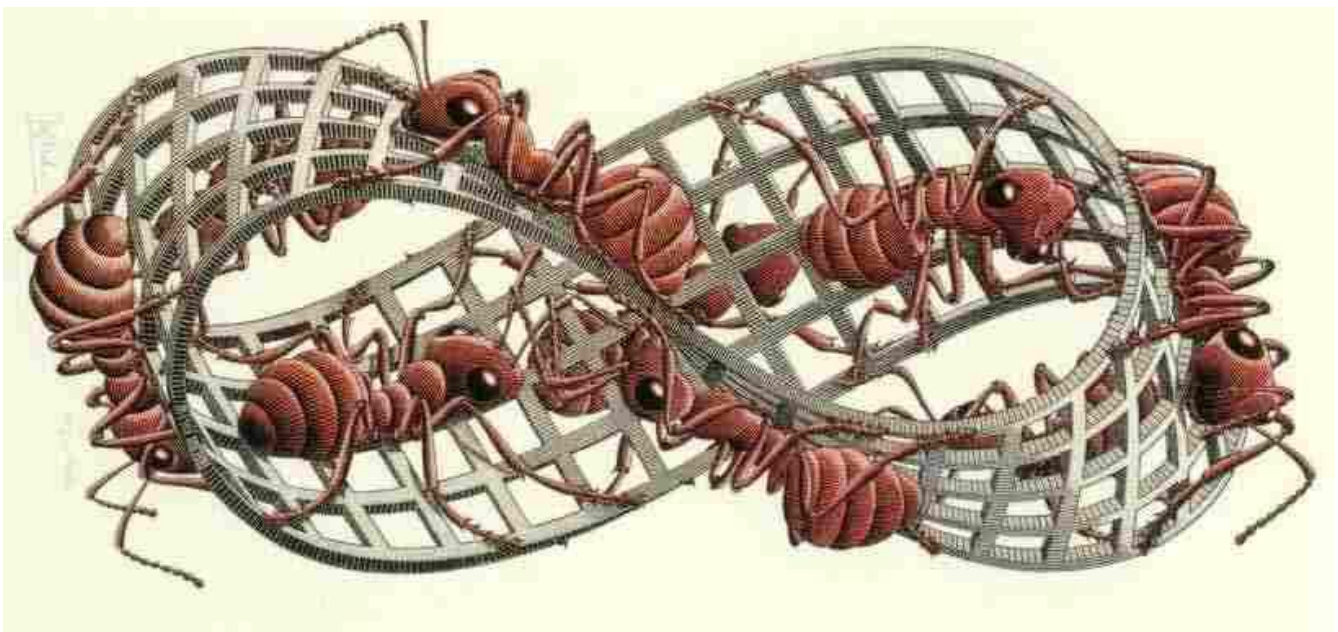
Fermat’s Last Theorem [usually after I cover the Pythagorean Theorem]. My students get a real kick out of this story with all its drama, culminating with Andrew Wiles’ proof, and he not winning the Field’s medal because he was 41 years old when he finished it.

The story of the USS Yorktown, a guided missile cruiser that in 1997 found itself dead in the water for a couple of hours because a programmer’s error caused one of its computers to attempt to divide by zero, an error that eventually shut down the ship’s propulsion system. [Puts the phrase “division by zero is undefined” in perspective].

Galois’ untimely death in a duel over “an affair of honor.” [Matters of the heart are always popular with students.]

The tale of why there is no Nobel prize in Mathematics. [The one involving an affair between Nobel’s wife and the first mathematician who would have received the prize is juicier than the alternative. Although I mention both.]

The history of our subject is rich... let us share it...



Mortgage/Car Loan Assignment

by Yolanda James (SD Miramar College), south area representative

This is an extra-credit assignment I use in my Intermediate Algebra class, soon after the chapter on exponents. Many of our students nowadays are older, and possibly thinking about buying a car or a home in the near future. An assignment that involves mortgages and interest/principal payments intrigues them. Over the years I have found that I need to include much more guidance and information (they don't know what "principal" is, or how to find the middle month, or how to find "what percent of the loan amount", etc) than I did when I first did this – so now I define those, either to the whole class, or as an addendum. I use interest rates divisible by 12, and show how the first month's interest is determined, leaving the rest of the payment to reduce the principal, which then decreases the next month's interest, etc. You might try this with your students – be sure to ask them for their impressions at the end, you'll be surprised!

Objectives:

- Link what you've learned to your real lives.
- Use the Internet, in ways you might really do it later.
- See how much of your loan payments go towards interest.
- See how much different interest rates affect overall costs.
- Use a complex formula.

up to 25 points

Due on _____.

$$P = \frac{Ar}{n \left(1 - \left(1 + \frac{r}{n} \right)^{-nt} \right)}$$

Formula for calculating monthly payments on a loan.

P = monthly payment, A = amount of loan,

r = annual interest rate, n = number of payments annually, t = number of years of loan

Procedure:

Assume you are going to purchase either a home, costing \$300,000, or a new car that costs \$25,000.

Answer the questions 1 – 7 in a **complete sentence or two for each question**. The answers must be typed, on 2-3 pages. The math work can be handwritten on a separate page. If you choose to buy a house, answer the questions regarding the house. If you choose to buy a car, answer the questions regarding the car. Find a house or car that closely meets the prices described, but use the exact \$300,000 or \$25,000 numbers to answer the questions (even if your house/car does not cost exactly that). Use one of the search websites listed, or another one that you might discover, to find this information:

1. a) Where is the home, and how big is it, with how many bedrooms and bathrooms?
 b) What kind of car is it, and what features does it have?
 c) What source or website did you use to get this information?
2. If you can make a 20% down payment on your house or car, how much do you still need to borrow?
3. Use the formula to determine your monthly payment for the amount borrowed. Show your steps.
 - a) For the house, assume you will get a 30-year home mortgage at 6.0%, starting in January 2010.
 - b) For the car, assume you will get a 5-year loan at 8.4%, starting in January 2010.

4. Answer these questions for the home or for the car:
 - a) Use the formula above, to get the monthly payment. Show some of the intermediate steps.
 - b) Now use the website <http://www.eloan.com/s/amortcalc> or some other loan calculator website to determine the payment. How does this compare with the payment you computed with the formula?
 - c) Using the amortization table from the website, determine how much goes towards principal/interest
 - i) in the second payment (Feb 2010)?
 - ii) in the middle payment? What month/year is that?
 - iii) in the second-to-last payment? What month/year is that?
 - d) How much will you pay altogether for the loan? What percent of the original loan amount is that?
 - e) How much interest will you pay altogether? What percent of the original loan amount is that?
- 5a-e. What if you could pay an extra \$200 (home loan) or \$50 (car loan) per month – what would be the new answers to 4 a-e ? What is your conclusion about paying a little extra each month?
- 6-7. Now re-do problems #4, but suppose that you were willing/able to pay the increased costs of a 20-year home mortgage, at 5.4% or a 4-year car loan, at 7.2.% (banks charge less interest on a shorter loan). Notice how your new answers differ from the first set.
8. What can you conclude about borrowing a large amount of money? What's your reaction to this assignment?



BITS AND BYTES

by Sister Rita M Basta, BVM

Have you ever thought of using Children's Literature in your Math Class? There are many advantages: students enjoy listening to a well-read story; some stories can be used for understanding the topic you are teaching; students are receptive to learning new information in an innovative way and even begin to ask insightful questions. Try using them in your math for teacher's classes, or in your math idea's class. I have even used them in a pre-calculus and college algebra class. Here are some of my favorites:

G is for Google; A Math Alphabet Book by Schwartz, ISBN: 1883672589. Each page explains a math word. A word a day at the beginning of class can be fun.

The King's Chessboard by Birch, ISBN:0140548807. Try using this when teaching exponential growth.

The following are very good for Math for Teacher's courses. There are many Sir Cumference books (I only listed two) that cover different elementary school topics and they are very popular in elementary classrooms.

Sir Cumference and the Dragon of Pi by Neuschwander, ISBN: 1570911649

Sir Cumference and the First Round Table by Neuschwander, ISBN: 1570911525

Grandfather Tang's Story (about tangrams) by Parker, ISBN: 0517885581

The Math Curse by Scieszka and Smiths, ISBN:0670861944; Mrs Fibonacci, the young boy's teacher says: "You know, you can think of almost everything as a math problem" So, as soon as the alarm wakes him in the morning, the boy is overwhelmed by math he encounters all day!

The Number Devil by Enzensberger, ISBN:0805057706. This is enjoyable reading for all ages! "Twelve year old Robert hates his math teacher; who annoys him with stupid work problems and won't let him use his calculator; Then, in his dreams, he meets a number devil who shows him what math is really about: zeros and one, infinite series and irrational numbers, primes and probability" It is witty, clever, interesting and covers topics in math history as well as number theory.

BITS or BYTES are welcome for next Newsletter. Please email: rita.basta@csun.edu

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