



TCU Math Newsletter

Talent is like a marksman who hits a target that others cannot reach; genius is like the marksman who hits a target others cannot even see.

— Arthur Schopenhauer

Actuarial Information Meeting

One possible career option for mathematics majors is to become an actuary, and TCU offers an Actuarial Concentration as an option in the degree plan. Students interested in learning more about the actuarial profession should come to the information session lead by Catherine Taylor of USAA. In this session you will learn what an actuary does and how you can become one. Ms. Taylor will also tell you about career options and internship opportunities at USAA.

The information session will be held in TUC 139 at 12 noon on Wednesday, November 3. Refreshments will be served starting at 11:30 am in the same room.

Study Abroad Meeting

Dr. Park and Dr. Hatcher will be teaching a study abroad course based in London May 9-27, 2011. The course, "The History of Science and Technology in Western Civilization," is open to students of all backgrounds and comes with Historical Traditions and Writing Emphasis CORE credit. It will include visits to sites in London, Oxford, Cambridge, and Greenwich. You can learn more about the class by coming to our information session at 3:30 pm on Thursday, November 11 in Tucker 300. Refreshments will be served of course!

Math Department Bowling Outing!

All mathematics students, faculty and staff are invited to come to a department bowling outing on Friday, December 3 from 4:00 to 6:00 pm at Brunswick Westcreek Lanes, 3025 Altamesa Blvd, Fort Worth. The cost is \$8 per person and includes shoes, lane fee, and soft drinks. There will be a prize for the person with the largest prime number score.

Those planning to come should RSVP to Alissa Garrett at a.a.grissom@tcu.edu and turn in your \$8 fee to the Math Department office in TUC 206 by November 22.

November Colloquium Talks

Two speakers will be featured in the TCU Colloquium series in November. The first talk, by Professor Sergey Belov of Rice University, will be on Friday, November 5. In his talk, "Riemann-Hilbert approach to the semiclassical Nonlinear Schrödinger equation," Dr. Belov will discuss a one-dimensional focusing NLS with cubic nonlinearity in the semiclassical limit.

On Wednesday, November 10, Professor Minerva Cordero of the University of Texas at Arlington will present the talk "Cyclic and acyclic semifields." In this presentation, Dr. Cordero will discuss the similarities between the multiplicative groups of fields and semifields and provide further examples to support Wene's conjecture.

Both Colloquium talks are in TUC 138 at 3:30 pm, and refreshments will be served in TUC 300 during the half hour before each talk.



Solution to the October 2010 Problem of the Month

Problem: A recent episode of *Futurama* centered on a mind-switching machine. The machine could exchange the minds between two bodies but could not exchange the minds between the same pair of bodies ever again. The Professor and Amy switch bodies. What is the smallest number of additional people needed to use the mind-switching machine to put everyone's mind back into their own bodies?

Solution: This solution is essentially due to graduate student Alissa Garrett. If we add only, say, Leela to the mix, she can switch with, say, the Professor. Only one possible switch remains (Leela and Amy) so that Leela's body cannot get her mind back from the Professor's body.

Now add Leela and Bender (assuming the machine works on robots) to the mix. It is easily checked that everyone has their own minds back after the following bodies go into the machine: Amy and Leela, the Professor and Bender, the Professor and Leela, Amy and Bender, Leela and Bender.

November 2010 Problem of the Month

Starting at $(a, 0)$, Jessie runs along the x -axis toward the origin at a constant speed s . Starting at $(0, 1)$ at the same time Jessie starts, Riley runs at a constant speed 1 counterclockwise around the unit circle until Jessie is far down the negative x -axis. For what integers $a > 1$ is there a speed s so that Jessie and Riley reach $(1, 0)$ at the same time and $(-1, 0)$ at the same time?

Students and others are invited to submit solutions to Dr. George Gilbert by e-mail (g.gilbert@tcu.edu) or hard copy (Math Dept. Office or TCU Box 298900). Correct solutions submitted by persons who are not members of the TCU math faculty will be acknowledged in the next issue of the newsletter. Note that a correct solution is an answer and a justification of its correctness. The solution to the problem will be published in the next edition of the newsletter.

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