
TCU Math News Letter

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Anyone who considers arithmetical methods of producing random digits is, of course, in a state of sin.

--- John von Neumann

[Editor: Dr. Rhonda Hatcher](#) and [Archive of Newsletters](#)

TCU Lectureship Talks on October 9 and 16

Professor Isabel Darcy of the University of Texas at Dallas will be the next speaker in the 2001-2002 TCU Research Lectureship Series. Her talk was originally scheduled for September 11, 2001, but was cancelled due to the tragic events of the day. Her talk, "Knot Theory and Modeling Protein Action," has been rescheduled to 4:00 p.m. on Tuesday, October 9.

Professor Lorenzo Sadun of the University of Texas at Austin will present the talk "When Length Matters: Tilings vs. Subshifts in One Dimension" at 4:00 p.m. on Tuesday, October 16.

Both of these talks will be presented in Winton Scott Hall 145, and refreshments will be served in Winton Scott Hall 171 at 3:30 p.m. before each talk. All TCU students, faculty, and other interested members of the community are invited to attend the lectures.

Parabola Meeting on Tuesday, October 30

The next meeting of Parabola, the TCU undergraduate mathematics club, will be on Tuesday, October 30. The meeting will begin with refreshments at 3:30 p.m. in Winton Scott Hall, Room 171. At 4:00 p.m., Professor Rhonda Hatcher of the TCU Mathematics Department will present the talk "Ranking College Football Teams." The talk will be presented in Winton Scott Hall 145.

Because the meeting is being held on the day before Halloween, we are holding a Halloween costume contest. A prize of some undetermined value will be awarded to the student who is judged to be wearing the best costume. Last year, mathematics major Amanda Knecht, who came dressed as Dr. Park, was the winner.

The Putnam Exam

The Sixty-Second Annual William Lowell Putnam Mathematical Competition will be held on Saturday, December 1, 2001. This annual competition consists of a twelve-question written exam. The questions require different amounts of mathematical background, and all require a bit of ingenuity to solve. The scores on the exam are typically quite low, and even answering a few questions is considered an excellent performance. The competition is open to undergraduates enrolled in colleges and universities of the United States and Canada who have not yet received a college degree. Any college or university with at least three

entrants also enters the team competition. Prizes are awarded to the top twenty-five finishers and to the departments of mathematics of the institutions with the five top ranking teams.

Copies of the exam from last year are posted on the Problem Solving bulletin board down the hall from the Mathematics Department. Those interested in signing up to take the Putnam Exam this year should contact Professor George Gilbert by October 10 (in Winton Scott Hall 141 or 257-6061 or g.gilbert@tcu.edu).

Major/Minor Fair

The Center for Academic Services will sponsor the seventh annual Major/Minor Fair on Monday, October 8, from 10:30 a.m. to 1:30 p.m., in the Student Center. Students interested in getting information about majors, minors, and careers are encouraged to attend.

Solution to the September 2001 Problem of the Month

Problem: With (otherwise) unmarked 7-cup and 11-cup measures, show how to obtain exactly two cups. You have a source of unlimited water and can throw water out, but have no other receptacle to store water? (Southwest Missouri State University's Problem Corner)

Solution: We'll write the result of each step as an ordered pair with the first coordinate the number of cups in the 7-cup measure and the second coordinate the number of cups in the 11-cup measure: (0,0), (7,0), (0,7), (7,7), (3,11), (3,0), (0,3), (7,3), (0,10), (7,10), (6,11), (6,0), (0,6), (7,6), (2,11).

Problem of the Month

There is no generalization of the quadratic formula that solves polynomial equations of degree 5 and higher, such as $x^5 - 5x^4 + 8x^3 - 6x^2 + 3x + 3 = 0$. However, for this month's problem, you are also given that there are two solutions to this particular equation whose sum is 2. Find all real solutions (exactly, not in the form of a numerical approximation).

(Remember that math majors will earn 10 points in the Bucks for Books lottery for a correct solution. For details and other ways to earn points, refer to the September 2000 Newsletter or visit the web page www.math.tcu.edu/math/BucksForBooks.html)

Students and others are invited to submit solutions to Dr. George Gilbert (Math Dept. Office or P.O. 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.

The TCU Math Newsletter will be published each month during the academic year. **Dr. Hatcher: Editor; Dr. Gilbert: Problem Editor; Dr. Doran: Thought of the Month Editor.** Items which you would like to have included should be sent to **Dr. Hatcher (Math Dept. Office or P.O. 298900).**