TCU Math News Letter

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The most beautiful thing we can experience is the mysterious. It is the source of all true art and science.
--- Albert Einstein (1879-1955)

Editor: Dr. Rhonda Hatcher and Archive of Newsletters

TCU Lectureship Series Begins on Tuesday, September 7

The TCU Mathematics Department Research Lectureship Series for 1999-2000 will feature talks by nine research mathematicians from other universities. The first speaker will be Professor Barbara Shipman of the University of Texas at Arlington. Her talk, entitled "The Geometry of the Honeybees Dance Language," will be presented at 4:00 p.m. in Winton Scott Hall.

The second speaker will be Professor Mark Sepanski of Baylor University. On Tuesday, September 21, 1999 he will speak on "How to Build a Representation from Scratch"

Refreshments will be served in Winton Scott Hall 171 during the half-hour preceding each talk. All TCU students, faculty, and other interested members of the community are invited to attend the lectures.

First Parabola Meeting to be held in October

Parabola, the TCU undergraduate mathematics club, will hold its first meeting in October. Ms. Allison Owen of the TCU Mathematics Department will present a talk. The specific date and time will be announced in the October newsletter.

Students interested in joining Parabola should contact Professor Rhonda Hatcher (in Winton Scott Hall 142 or 257-6062 or r.hatcher@tcu.edu).

1999 Calculus Bee Winners

On April 21, 1999 the TCU Mathematics Department held its annual Calculus Bee. The first place winner was Jeff Moles, who is currently a senior mathematics major. Second place and third place went to Mitsutaka Shirasaki and Ami Lakdawala, respectively.

Five Mathematics Majors Join Pi Mu Epsilon

On May 5, 1999 five TCU mathematics majors were inducted into Pi Mu Epsilon, the undergraduate mathematics honor society. The inductees were Leanne Finke, Olga Isaeva, Amy Ludington, Anna Mitchell, and Mary Tuetkin. Dr. Roy Combrink is the faculty sponsor of Pi Mu Epsilon.

Sign-Up for the William Lowell Putnam Exam

The Sixtieth Annual William Lowell Putnam Mathematical Competition will held on Saturday, December 4, 1999. 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 a very good 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 may also enter 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 last year's exam 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 (in Winton Scott Hall 141 or 257-6061 or g.gilbert@tcu.edu).

Solution to the April 1999 Problem of the Month

Problem: Suppose that m and n are positive integers with $m \le n$. Show that $m + 3n + n^2$ cannot be a perfect square.

Solution: We have

$$(1+n)^2 = 1 + 2n + n^2 < m + 3n + n^2 \le n + 3n + n^2 < 4 + 4n + n^2 = (2+n)^2.$$

Therefore, $m + 3n + n^2$ lies strictly between two consecutive perfect squares.

This month's problem was solved by mathematics major Jeff Bradley.

Problem of the Month

This year's first problem comes from The Art and Craft of Problem Solving by Paul Zeitz. Two towns, A and B, are connected by a road. At sunrise, Pat begins biking from A to B along this road, while simultaneously Dana begins biking from B to A. Each person bikes at a constant speed, and they cross paths at noon. Pat reaches B at 5 p.m. while Dana reaches A at 11:15 p.m. When was sunrise?

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.