TCU Math News Letter

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I have had my results for a long time; but I do not yet know how I am to arrive at them.

- Karl Friedrich Gauss (1777-1855)

Editor: Dr. Rhonda Hatcher and Archive of Newsletters

Talks Presented for the TCU Mathematics Department

Three guest speakers will visit TCU and present talks in the months of January and February. All will present both an undergraduate talk and a research level talk.

The first speaker to visit was Ms. Joan Lind, who is currently completing her Ph.D. in mathematics at the University of Washington. Her visit was on January 31. Her undergraduate level talk was entitled "Random Walks: Betting, Brownian Motion and Beyond," and her research talk was "The Geometry of the Loewner Equation."

Dr. Greg Friedman will be the second speaker to visit campus. Dr. Friedman earned his Ph.D. from New York University and is currently on the faculty at Yale University. His undergraduate talk is "An Introduction to Algebraic Topology via Knot Theory." He will present this talk on Thursday, February 10 at 1:00 p.m. in Tucker Technology Center 243. The Mathematics Department will host a pizza lunch for all those attending the talk at 12:30 p.m. in TTC 300. In this talk, Dr. Friedman will discuss elementary knot theory and some of the algebraic invariants that are useful for telling knots apart. Dr. Friedman will present his research level talk "Singular Knots and Stratified Spaces" on the same day at 3:30 p.m. in TTC 244. Refreshments will be served in TTC 300 at 3:00 p.m.

Our third guest speaker, Dr. Darren Glass, will be on campus on Monday, February 14. Dr. Glass earned his degree from the University of Pennsylvania, and he is currently on the faculty at Columbia University. His undergraduate talk, "Elliptic Curves and Poncelet's Porism," is scheduled for 1:00 p.m. in Tucker Technology Center 137. In this talk, Dr. Glass will introduce the notion of an elliptic curve and also show a surprising application in plane geometry. Pizza will be served before the talk at 12:30 noon in TTC 300. Dr. Glass will present his research talk, "The p-Torsion of Hyperelliptic Curves," at 3:00 p.m. in TTC 244.

All TCU students are encouraged to attend these talks, especially those intended for undergraduates.

University Career Services Career Night

TCU University Career Services is sponsoring a Career Night on February 16 from 4:00 p.m. to 7:00 p.m. in the Student Center Ballroom. Career Nights are job fairs that attract employers seeking college-educated workers and allowing students to talk directly with representatives from a variety of organizations. You can find more information about the Career Night at the web site http://www.careers.tcu.edu.

Solution to the November 2004 Problem of the Month

Problem: What is the largest number of congruent regions of area 1 that can be packed inside a circle of radius 2004 without overlapping?

Solution: One can pack at most 12,616,686 congruent regions in the circle. One cannot pack more because the area of the circle is $\pi\, 2004^2 = 12{,}616{,}686.362...$. The simplest such example is probably 12,616,686 sectors of the circle with angle $2\pi/(\pi 2004^2) = 1/2008008$.

February 2005 Problem of the Month

Suppose that the posted odds against the four horses in a race are of 2-1, 3-1, 4-1, and 5-1. Show that you can bet on this race in such a way that you are sure to make a profit.

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.