

TCU Math Newsletter

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*If at first you succeed – try to
hide your astonishment.*

– Harry F. Banks

Professor Sue Geller to Present a TCU Lectureship Talk

Professor Sue Geller of the Texas A&M University will present a talk entitled "K-theory and Cyclic Homology: What are they and what are they good for?" at 4:00 p.m., Tuesday, April 12, 1994 in Winton Scott Hall 145. This talk will be the last in the TCU Mathematics Department Research Lectureship Series this semester.

Students, faculty, and other members of the community interested in mathematics are invited to attend the lecture and to join us for refreshments at 3:30 p.m. in Winton Scott Hall 171.

Mathematics Department Picnic on Saturday, April 30

The annual Mathematics Department Picnic sponsored by Parabola, the TCU Undergraduate Mathematics Club, will be held at 1 p.m. on Saturday, April 30, 1994 at the home of Dr. Rhonda Hatcher and Dr. George Gilbert at 4204 Harlanwood Drive. Their home is only about one and a half miles from campus. There is always lots of good food and fun, and for anyone willing to brave the "slightly" cold water, a swimming pool will be available.

All undergraduate students and faculty are invited to come. A sign-up sheet and maps to the picnic are in the Math Department Office in WSH 112.

Integration Bee on April 20

The TCU Mathematics Department will hold the annual Integration Bee on Wednesday, April 29, 1994. The competition will begin at 4:00 p.m. in WSH 145. We will serve refreshments at 3:30 p.m. in WSH 171 so that the contestants will have plenty of energy during the competition.

All TCU undergraduate students are eligible to enter the Integration Bee. The cash prizes awarded will be \$50 for first place, \$25 for second place, and \$15 for third place. Last year, Ted Strout who is currently a senior mathematics and English major took first place. Jonathan Campbell, a mathematics major who graduated last December, took second place, and Shawn Gay, who is currently a senior physics major, placed third.

If you are interested in participating in the Integration Bee, please sign up in the Math Department Office in WSH 112.

Two Mathematics Majors Invited to Join Phi Beta Kappa.

Mathematics majors Bruce Doran, a senior, and Jody Jolissant, a December 1993 graduate, have been invited to join Phi Beta Kappa. This honor, which is in recognition of outstanding academic achievement, was bestowed on only six juniors and twenty-five seniors at TCU this year. Ted Strout, a senior mathematics major, was initiated into Phi Beta Kappa last year as a junior.

Congratulations Bruce and Jody!

Solution to the February 1994 Problem of the Month

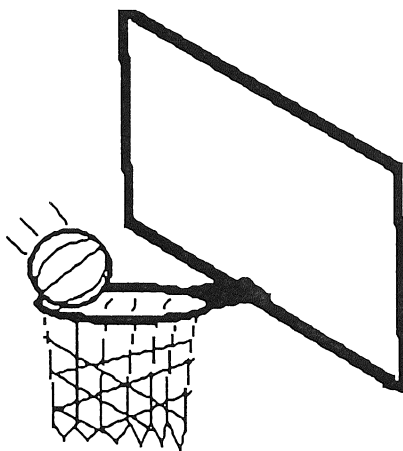
Problem: *You are going to a store to buy an item whose price you don't know exactly. You want to have coins so that you can pay any price of one dollar or less with exact change. What is the fewest number of coins you need? (A complete solution shows that your collection of coins works and that no smaller collection works.)*

Solution:

Nine coins is the least that will allow one to pay any amount up through one dollar. Clearly, one needs at least four pennies. To pay 5¢, we need either another penny or a nickel. Since a nickel and four pennies can be used to make up any amount five pennies can, we may assume we have four pennies and a nickel. Similarly, to pay 10¢, we may assume we add a dime rather than another penny or nickel. The next step is 20¢, and we may again assume that we add a second dime. We now have four pennies, one nickel, and two dimes, and can pay any amount up through 29¢. Following similar reasoning, we next add a quarter, and then a half dollar. With these nine coins, we can pay any amount up through one dollar.

This problem was solved by David Puente, a junior mathematics major.

Problem of the Month



What is the smallest angle to the horizontal at which a basketball will travel cleanly through the hoop? Assume that the ball is 9.5 inches in diameter, the rim is 18 inches in (internal) diameter, and that the ball travels through the hoop in a straight line.

Students and others are invited to submit solutions to Dr. George Gilbert (Math Dept. Office or P.O. 32903). 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.