
TCU Math News Letter

Volume 8, Number 7 April 2000

Because other planets might be physically very different from ours, scientists there might use mathematics ... very unlike ours.... Their geometry could be something rather strange, largely topological, say, and geared to flexible structures rather than fixed sizes or shapes.

--- Nicholas Rescher

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

Calculus Bee to be Held on Wednesday, April 19

The TCU Mathematics Department will host its annual Calculus Bee on Wednesday, April 19 beginning at 4:00 p.m. in Winton Scott Hall 145. All TCU undergraduates are eligible to compete. Refreshments for the contestants will be served in Winton Scott Hall 171 from 3:30 to 4:00 p.m.

Contestants will be asked to answer calculus questions one at a time on paper. Contestants stay in the competition until they miss three problems. The last student remaining is the winner.

A prize of \$75 will be awarded to the first place contestant, and prizes of \$50 and \$25 will go to the second and third place contestants, respectively.

Last year, the first place contestant in the Calculus Bee was Jeff Moles, currently a senior mathematics major. The second and third place contestants were mathematics majors Mitsutaka Shirasaki and Ami Lakdawala.

Students interested in competing in the Calculus Bee should sign up in the Mathematics Department Office in Winton Scott Hall 112.

Big Bucks/Books Math Contest

The TCU Mathematics Department will hold the Big Bucks/Books Math on Wednesday, April 26. The contest, which consists of a one-half hour written mathematics test, is open to TCU undergraduate mathematics majors only.

The student with the top score will be awarded a prize of \$180 off the cost of books for the Fall 2000 semester. Second prize will be \$120 off the cost of books for Fall 2000.

The contest will be held from 4:00 to 4:30 p.m. in Winton Scott Hall 145. Refreshments will be served in Winton Scott Hall 171 from 3:30 to 4:00 p.m.

Amy Trefzger Named Senior Scholar of the Mathematics

Department

The 2000 Senior Scholar of the Mathematics Department will be Amy Trefzger. Amy, who will attending graduate school in mathematics next year, will receive this honor at the Honors Banquet on April 13.

Two Mathematics Majors Invited to Join Phi Beta Kappa

Two of our majors have recently been invited to join Phi Beta Kappa, the nation's oldest honor society. The honored students are junior Kendra Lewis and senior Amy Trefzger. Congratulations to these excellent students!

Solution to the March 2000 Problem of the Month

Problem: A "labyrinth" is an 8×8 chessboard with barriers between some pairs of neighboring squares. If a rook can traverse the entire board without crossing any barriers, the labyrinth is "good"; otherwise, it is "bad". Are there more good labyrinths or more bad labyrinths?. (From the "Tournament of the Towns" contest.)

Solution: There are more bad labyrinths. When a particular corner square is isolated by two barriers, a labyrinth is bad. Thus, one out of every four labyrinths is bad because a particular corner is isolated. Because none of the four corners can be isolated in a good labyrinth, at most $(3/4)^2 = 81/256 < 1/2$ of all labyrinths are good.

Problem of the Month

This month's problem is #23 from Southwest Missouri State University's archive of high school problems. Because $3^2 + 4^2 = 5^2$, it is possible to cut 3×3 and 4×4 squares into a finite number of pieces that can be reassembled to form a 5×5 square. Do so using the smallest number of pieces possible. (We will acknowledge those TCU undergraduates who find an example using the least number of pieces with super kudos to those who explain why it cannot be done with fewer pieces.)

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).