TCU Math News Letter

Volume 7, Number 7 April 1999

There is no more common error than to assume that, because prolonged and accurate mathematical calculations have been made, the application of the result to some fact of nature is absolutely certain.
--- A.N. Whitehead

Editor: Dr. Rhonda Hatcher and Archive of Newsletters

Mathematics Department Picnic on Saturday, May 8

The TCU Mathematics Department Picnic, sponsored by Parabola, the TCU Undergraduate Mathematics Club, will begin at 12 noon on Saturday, May 8, at the home of Dr. Robert Doran at 4204 Ridglea Country Club Drive, Fort Worth, Texas. All mathematics majors, graders, faculty, and other friends of the department are invited to come. A sign-up sheet and maps to the picnic are in the Math Department Office in WSH 112.

Parabola Meeting on April 19

Professor Efton Park of the TCU Mathematics Department will be the speaker at the next meeting of Parabola on Monday, April 19. His talk is entitled "The Mathematics of Apportionment."

The Parabola meeting will begin with refreshments at 3:30 p.m. in Winton Scott Hall 171, and Dr. Park's talk will begin at 4:00 in Winton Scott Hall 145. All TCU students, faculty, and other members of community are invited to attend.

Two Frank Stones Research Lectureship Talks in April

On Monday, April 5, at 4:00 p.m. Professor Paul Phillips of the University of Dallas will present a talk in the Frank Stones Research Lectureship. His talk is entitled "An inverse spectral problem: Finding potential functions from eigenvalue data." Another talk, jointly sponsored by the Metroplex Algebraic Geometry, Algebra, and Number Theory (AGANT) Seminars and the Frank Stones Research Lectureship will be given by Professor Kenneth Kramer of City University of New York, Queens College. Dr. Kramer will present the talk "Jacobian varieties of genus 1 or 2" on Friday, April 30, at 4:15 p.m.

The talks will be given in Winton Scott Hall 145, and refreshments will be served in Winton Scott Hall 171 during the half hour preceding the talks. All TCU students, faculty, and other interested members of the community are invited to attend the lectures.

Calculus Bee to be held on Wednesday, April 21

The TCU Calculus Bee will held on Wednesday, April 21, beginning at 3:30 p.m. in Winton Scott Hall 145. There will be refreshments for all the contestants in Winton Scott Hall 171 from 3:00 to 3:30 p.m.

All TCU undergraduates are eligible to compete. 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 engineering major Mitsutaka Shirasaki. The second and third place contestants were mathematics majors Aaron Heap and Jeff Moles.

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

Nicole Kitagawa Named Senior Scholar of the Mathematics Department

The 1999 Senior Scholar of the Mathematics Department will be Nicole Kitagawa. She will be continuing at TCU next year to finish a masters degree. The award will be presented at the Honors Banquet on April 15.

Solution to the March 1998 Problem of the Month

Problem: *Find all positive integers n such that every positive integer whose base 10 expansion ends in n is divisible by n. (For instance, 100 is such a number because every number of the form $\ldots 100$ is divisible by 100.)*

Solution: Let such number n have d digits. Number ending in n have the form $m10^d + n$ for some number m. For all such numbers to be divisible by n, it is necessary and sufficient that 10^d be divisible by n. Therefore, n must be a d digit number of the form 2^a5^b with a and b nonnegative integers that are at most d, so that $10^{d-1} \le 2^a5^b < 10^d$ or $d-1 \le a\log 2 + b\log 5 < d$. There are three cases:
(i) $a = b = d-1$, (ii) $a = d$, (iii) $b = d$. Computation in cases (ii) and (iii) yields the further breakdown (ii) $b = d-1$ and (iii) $a = d-1$, $a = d-2$ $(d \ge 2)$, $a = d-3$ $(d \ge 3)$.

Problem of the Month

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

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).