TCU Math Newsletter

I am a mathematician to this extent: I can follow triple integrals if they are done slowly on a large blackboard by a personal friend.

- J. W. McReynolds

Parabola Talk on April 10

Professor Ze-Li Dou of the TCU Mathematics Department will present "The Story of Magic Squares" on Wednesday, April 10 at 3:30 pm in TUC 245 with refreshments in TUC 300 at 3:00 pm. This talk will be accessible to undergraduate students, and all faculty, students, and interested members of the community are invited to attend.

April Actuarial Talk

Mr. Ken Weingart of Forethought Financial Group will present the talk "Product Development" on Wednesday, April 17 at 3:30 pm in TUC 245. He will discuss the process of designing and developing a line of new insurance or financial products. Refreshments will be available before the talk in TUC 300.

Frank Stones Colloquium Talk

Professor Ye-Lin Ou from Texas A&M University Commerce will present the talk "From Minimal Surfaces to Harmonic Maps and Biharmonic Submanifolds" on Friday, April 5 at 3:30 pm in TUC 245. Professor Ou will start his talk with a brief review of minimal surfaces and two historically important problems. Next, he will explain how minimal surfaces are generalized to harmonic maps and biharmonic submanifolds, and conclude by focusing on some recent work on Chen's conjecture of biharmonic submanifolds and conformal immersions. Refreshments will be served before the talk in TUC 300.

Calculus Bee on Tuesday, April 23

The annual TCU Mathematics Department Calculus Bee will be held on Tuesday, April 23 at 3:30 pm in Tucker Technology Center 245. Refreshments for the contestants will be served at 3:00 p.m. in TUC 300. All TCU undergraduates are eligible to compete. Prizes will be awarded to the top three finishers, with $75 for first place, $50 for second place, and $25 for third place.

Students wishing to compete in the Calculus Bee should sign up in the Mathematics Department office in TUC 206. While there is no deadline for signing up, we would like to know who is participating as soon as possible.

Math Majors Honored

Brian Preskitt has been named the 2013 Mathematics Department Senior Scholar. The winner of the award is determined by the Mathematics Department Faculty. Along with being an outstanding mathematics student, Brian scored in the top 8 percent of national scores on the 2012 William Lowell Putnam Competition, an excellent performance in this very difficult competition.

Math majors Ross Cunningham, Brianne Meyer and Vicky Xue, and math minor Caitlin McAteer were invited to join the prestigious national honor society Phi Beta Kappa. They will be initiated into membership in May 2013.

Drew Curd, Thomas Hale, Xin Su, and Karl Wood will be inducted in the mathematics honor society Pi Mu Epsilon later this month. Ross Cunningham, Kitt Sechrist, and Vicky Xue were initiated last year.
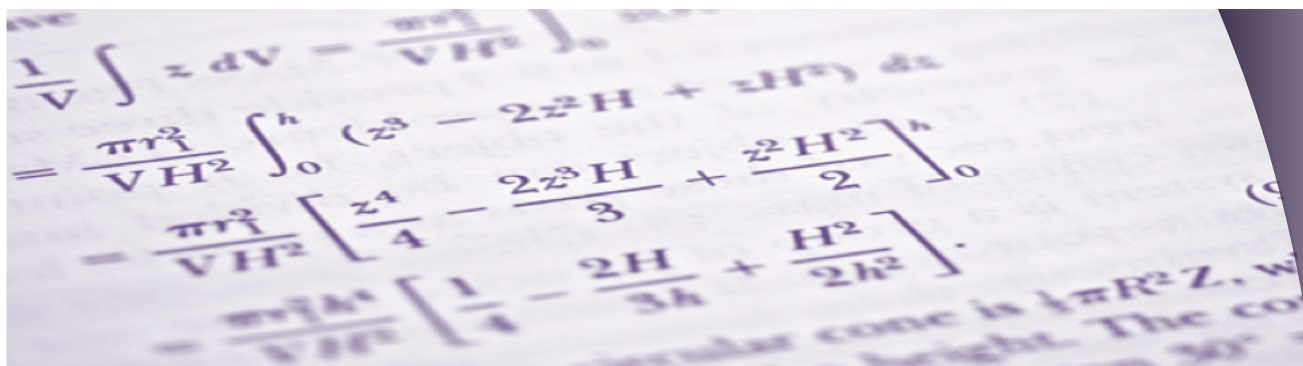
Solution to the March 2013 Problem of the Month

Problem: Each point on the circumference of a circle is colored either purple or white. Show that there are three points on the circle that have the same color and form the vertices of an isosceles triangle. (Due to Stanley Rabinowitz.)

Solution: Suppose the claim is false. Place 12 points equally spaced around the circumference, labeling them P_1, P_2, ..., P_{12} as one goes clockwise around the circle. Two of P_1, P_5, P_9 must be the same color. Because they form the vertices of an equilateral triangle, there is no loss of generality in assuming P_1 and P_5 are purple. Therefore, P_3 and P_9 are white. Therefore, P_6 and P_{12} are purple. Because P_9 is white, at least one of P_7 and P_{11} is purple. Finally, triangles $P_5 P_6 P_7$ and $P_{11} P_{12} P_1$ are isosceles and at least one has all purple vertices.

This month's problem was solved by Jeff Bond (MS '12) and Brad Beadle ('96).

April 2013 Problem of the Month

Let S be a nonempty set of integers such that if one of the integers n, $2n + 9$, and $2n + 25$ is in S, then all three are in S. Must S be the set of all integers?

Students and others are invited to submit solutions to Dr. George Gilbert by e-mail (g.gilbert@tcu.edu) or hard copy (Math Dept. Office or TCU Box 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.