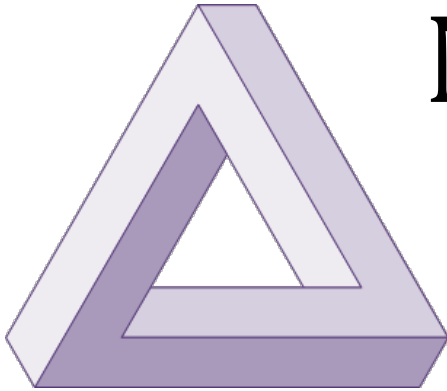# TCU Math Newsletter

I tell them that if they will occupy themselves with the study of mathematics they will find in it the best remedy against the lusts of the flesh.

- *Thomas Mann*

Putnam Mathematics Contest

The 75th Annual William Lowell Putnam Mathematical Competition will be held on Saturday, December 6, 2014, from 9:00 am to noon and 2:00 to 5:00 pm. The questions require different levels of mathematical background, and all require a bit of ingenuity to solve. The competition is open to undergraduates enrolled in colleges and universities of the United States and Canada who have not yet received a college degree. For more information about the contest visit http://math.scu.edu/putnam/. Students interested in signing up to take the Putnam exam this year should contact Professor George Gilbert at g.gilbert@tcu.edu by 4:00 pm on Monday, October 6.

If you are interested in problem solving sessions to prepare for the exam, please contact Dr. Gilbert. These sessions can be as frequent or as infrequent as participants would like.

TCU Mathematics Major Wins National Award

Alexandria McMillan, a senior Mathematics Major at TCU in the actuarial program, received a prestigious national scholarship from IABA (The International Association of Black Actuaries.). Only 22 students nationwide were selected for this honor. Congratulations Alexandria!

Professor Greg Friedman Speaking the TCU Faculty Favorite Lecture Series on October 15

Professor Greg Friedman of the TCU Mathematics Department will present the talk "The 85 Ways to Tie a Tie" in the TCU Faculty Favorite Lecture Series. In this talk he will take a humorous look at the history of men's neckwear, present a mathematical notation for necktie patterns, and use the notation to enumerate just how many ways there are to tie a tie. Attendees are encouraged to bring their own ties to participate during the talk.

The talk will be in Palko 130 from 6:30pm - 8:00pm. You can sign up to attend the talk (at no cost) at https://lifelong.is.tcu.edu/wconnect/CourseStatus.awp?&course=14FFFLS13.

Actuary Talk on October 23

Carrie McGraw Brewer of Ernst and Young will speak about job opportunities at Ernst and Young. Co-speakers include Xin Su (a 2013 TCU graduate) and Angelo Borges. The talk will be at 3:30 pm on Thursday, October 23 in TUC 245. Refreshments will be available before the talk in TUC 300. All interested TCU students are invited to attend.

Frank Stones Colloquium

Cheng-Chiang Tsai of Harvard University will be the next speaker in the Frank Stones Memorial Colloquium series. He will present the talk "p-adic Orbital Integrals and Local Character Expansions" on Thursday, October 9 at 3:30 pm in TUC 245. Refreshments will be served at 3:00 pm in TUC 300 before each talk.
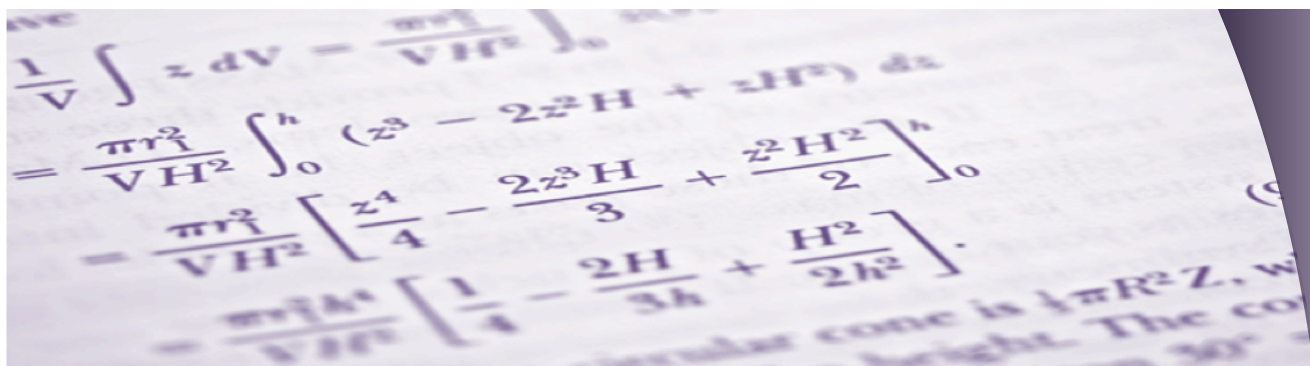
Solution to the September 2014 Problem of the Month

Problem: (*Purdue Problem of the Week***)** The polynomial $p(x)$ has integral coefficients and equals 2014 for at least five distinct integral values of x. Show that $p(x)$ cannot equal 2025 for any integer x.

Solution: Suppose $p(x) = 2014$ for four distinct integers $j < k < m < n$. Then $p(x) - 2014 = (x - j)(x - k)(x - m)(x - n)q(x)$ for some polynomial $q(x)$ with integral coefficients. If $p(x)$ equals 2025 for some integer x, then
$$11 = p(x) - 2014$$
would be the product of five integers, at least four distinct, which is impossible.

The September Problem of the Month was solved by Brad Beadle ('96).

October 2014 Problem of the Month

Show that the integer $3711 \ldots 11$ is always composite for a positive number of 1s.

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.