

TCU Math Newsletter

The present state of affairs is intolerable. Just think, the definitions and deductive methods which everyone learns, teaches and uses in mathematics, the paragon of truth and certitude, lead to absurdities! If mathematical thinking is defective, where are we to find truth and certitude?

- David Hilbert

Ken Stevenson to Retire

Mathematics Department faculty member Dr. Ken Stevenson will retire at the end of the Spring 2016 semester. A reception in his honor will be on Tuesday, April 12 from 2:00 to 4:00 pm in Tucker 300.



Math Majors Honored

Sarah Clement has been named the 2016 TCU Mathematics Department Senior Scholar. The winner of the award is determined by a vote of the Mathematics Department Faculty.

Zach Amato, Sydney Heckes, Gunnar Roadfeldt, and Dave Thompson will be initiated into the mathematics honor society Pi Mu Epsilon later this month.

Seniors Sarah Clement and David Thompson and juniors Stephen Copson, Rachel Hoffman, and Alyssa Zellner will be initiated into membership in Phi Beta Kappa this May.

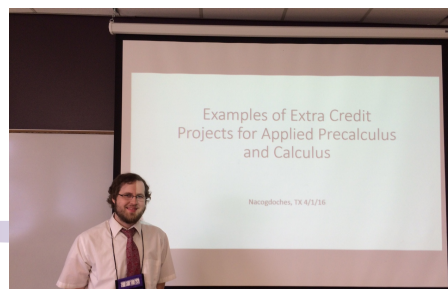
Congratulations to all of these students!

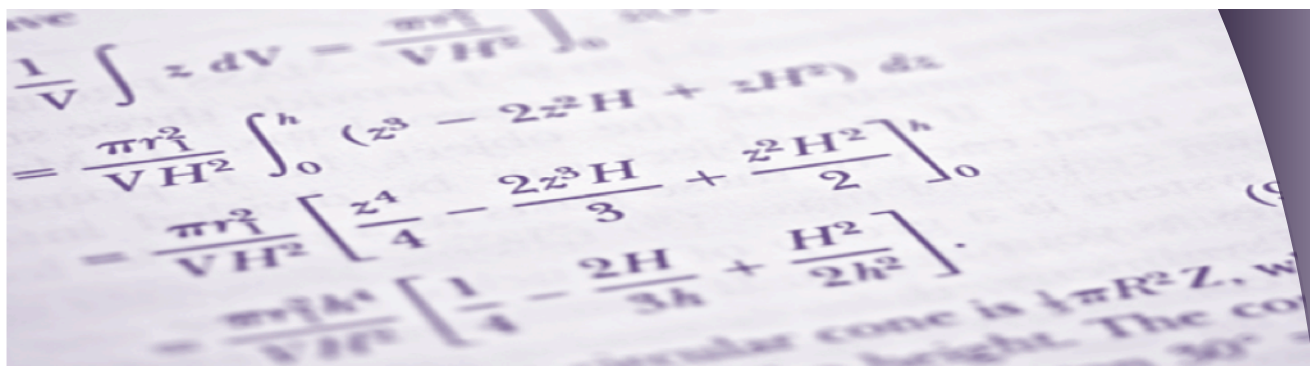
Calculus Bee on Tuesday, April 19

The annual TCU Mathematics Department Calculus Bee will be held on Tuesday, April 19 at 3:30 pm in Tucker Technology Center 245. The material covered is Calculus I and II, but not beyond the material that current Calculus II students have had. Those wishing to compete should arrive for refreshments and contestant number assignment at 3:00 pm in TUC 300. All TCU undergraduates are eligible to compete. Barnes & Noble gift cards will be awarded to the top three finishers, with \$75 for first place, \$50 for second place, and \$25 for third place.

Nat Hellerman's Presentation at the Texas MAA Meeting

TCU mathematics graduate student Nathanael Hellerman presented his talk "Examples of Extra Credit Projects in Applied Precalculus and Calculus" on April 1 at the 2016 Annual Meeting of the Texas Section of the Mathematics Association of America.





Solution to the March 2016 Problem of the Month

Problem: A 10-by-10 inch square cake is 2 inches thick. It is iced evenly on the top and sides. Show how to cut the cake into 9 pieces so that each piece has the same amount of cake and frosting.

Solution: Divide the perimeter into 9 portions of equal length; it is fine for a portion to go around a corner and consist of two segments. Join the endpoints to the center of the square forming pieces that are either triangles or a quadrilateral with a right angle, which we view as two triangles. Every triangle has altitude 5 and each piece has base or bases totaling $40/9$. Thus all have the same area.

April 2016 Problem of the Month

This month's problem is fairly old and its source is unknown. Let $[x]$ denote the greatest integer less than or equal to the real number x and let n be a positive integer. Prove that

$$[x] + \left[x + \frac{1}{n} \right] + \left[x + \frac{2}{n} \right] + \cdots + \left[x + \frac{n-1}{n} \right] = [nx].$$

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.