Goodsell Gazette

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The newsletter for the Carleton mathematics and statistics community

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Where are most of the Math Professors this week?

Boston, at the Joint Mathematics Meetings. Over 6000 mathematicians from all over the world present or attend lectures, view poster sessions and network at the event. Meanwhile, the Carleton math faculty will be conducting interviews in hopes of hiring several new professors. Everyone will be back by next week.

Undergraduate Research in Statistical Genetics and Biostatistics

Apply to become one of five or six undergraduates that will be part of a nationally recognized research team for eight weeks this summer to investigate current issues in statistical genetics and biostatistics. The program takes place over June and July on the campus of Dordt College in Sioux City, IA and comes with a $3200 stipend along with free housing and travel reimbursements. The application is due by January 31st, and can be found at: http://homepages.dordt.edu/ntintle/

Carleton Achieves Perfection at NCS Contest

Last November two Carleton teams were among the 76 teams from around the region who competed in the annual NCS problem-solving contest. Carleton's two teams consisted of Danny Chen, Shunji Li, and Sen Zhao, and Gracie Jaffie, Dylan Peifer, and Adam Zweber. The results of the contest came in after the last Gazette of the fall went to press, but we're thrilled to announce now that both teams finished in the top fifteen. In fact, Danny, Shunji, and Sen earned a perfect score, tying for first place with a team from St. Olaf and a team from the University of Minnesota. Congratulations to all who participated!

SUMO to show Moneyball on January 20th

In collaboration with the Math Department, SUMO is playing the movie Moneyball in the Weitz Cinema at 8 p.m. This movie stars Brad Pitt in a biographical role as the Oakland Athletics' general manager attempting to build the most competitive team ever in 2002.

Welcome Back to the 10 Math Majors who Studied Abroad in the Fall

The Math Department gives a hearty welcome back to the majors who were abroad last fall, nine of whom were studying in Budapest (Erika Warrick, Paul Cooper, Christophe Dethier, David Mills, Katie Storey, Ben Strasser, Justin Troyka, Daoji Huang and Laurel Orr). Tongji (Phil) Qian participated in Carleton's German seminar in Berlin.

Application Deadlines for MAA Grant Programs Approaching

Visit www.maa.org to check out grants such as the Dolciani Mathematics Enrichment Grants, Women in Math Grants, and Underrepresented Minorities in Math Grants (all due Feb. 12), as well as the National Research Experience for Undergraduates Program (due Feb. 24)

PROBLEMS OF THE WEEK

1. Find

$$\lim_{N\to\infty}\lim_{n\to\infty}\sum_{k=1}^{N}\left(\frac{2012}{n}\right)^{k}\binom{n}{k}$$

(As usual, $\binom{n}{k}$ is the binomial coefficient "*n* choose *k*.")

2. Note that the triangle *ABC* is isosceles, with equal angles at *A* and at *B*, if and only if the median from *C* and the angle at bisector at *C* are the same. This suggests a measure of "non-isoscelesness" (scalinity?): For each vertex of a triangle *ABC*, measure the distance along the opposite side between the "end" of the angle bisector from that vertex, as a fraction of the total length of that opposite side. This yields a number between 0 and $\frac{1}{2}$; take the least of the three numbers found in this way (for three vertices). The triangle is isosceles if and only if this least number is zero. Now for the question: What are the possible values of this least number, if *ABC* can be any triangle in the plane?

The first problem posed November 10 was essentially solved by Martin Bobb, as well as by John Snyder in Oconomowoc. Martin should stop by CMC 217 some time to pick up and item from the B.B.O.P. (For new readers: Those initials stand for Big Box O' Prizes. That box contains the small remaining supply of "C" blocks crafted by Loren Larson, along with miscellaneous items – often including books – that, usually, but not necessarily, have some connection with math.) Meanwhile, my own solutions to all the problems posed last term have been posted in the hallway outside CMC 217, so if you were waiting to submit a solution to one of them, sorry, its too late now. Of course, solutions to the new problems are eagerly awaited; if they get to my box in the CMC by Tuesday night, they'll be acknowledged in next week's *Gazette*. Happy New Year, and happy new term!

- Mark Krusemeyer

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