Considering a Mathematics Or Mathematics/Statistics Major?

Are you a first or second year student contemplating a math or math/stats major? Come to our annual prospective majors meeting on Thursday, February 14 at 4pm in CMC 206! Information will be provided about the major and several faculty members will talk about cool math/stats topics. Food will be provided.

The Konhauser Comes To Carleton

As we announced last week, on Saturday, February 23, we will host the 21st annual Konhauser Memorial Problemfest, which is named after the late Macalester professor and legendary problem poser Joe Konhauser. In this contest teams of up to three students get three hours (9am-12pm) to work together on a set of ten challenging and intriguing math problems. Then participants have lunch together while solutions are graded, and the results are announced after lunch. The winning team gets to take the “pizza trophy” home to their college for the year. A Carleton team won last year, so you can see the pizza trophy next to the chairs outside Sue’s office. Needless to say, it would be great to keep the pizza trophy here at Carleton for another year.

If you would like some practice with past Konhauser problems, drop by the problem solving group, which meets on Wednesdays, 4:30-5:30pm, in CMC 328. To sign up for this year’s Konhauser, contact Eric Egge as soon as possible. Three people can sign up as a team, but individuals are also welcome to express interest, and we might be able to help you find teammates.

Tutoring Opportunity

Students who love math and science are needed! Come to after school homework help Tuesdays and Thursdays from 3:00pm-5:15pm at Faribault High School. Many kids need help with algebra and chemistry and there are not many current tutors with expertise in these subjects. You can come once when you have time or make it a weekly commitment. Please come share your enthusiasm for math and science with students at Faribault. We meet outside of Sayles at 3:00pm. Contact wilhelmk or kiefferd with questions or to receive weekly reminders.

A Tour Talk That Should Take The Cake

After its “midterm break”, the Tour of Mathematics starts up again this week (Friday, February 8, 3:30pm, CMC 209) with Stephen Kennedy speaking on “Halving Your Cake”.

Summer Statistical Consulting Opportunity!

Are you interested in applying your statistics knowledge to “real-world” problems? I am seeking two students to work on a statistics project (or projects) solicited from the local community. At this stage, I do not have details on the exact nature of the problems, but rest assured,
the projects will be interesting and provide you the chance to polish your statistics skills. Prerequisite: Math 275 and Math 245. Stop by Laura Chihara’s office for an application. Deadline: March 1.

**Career and Summer Opportunities**

**Summer Research in Mathematics at the University of California, Berkeley:** The UC Berkeley Geometry, Topology, and Operator Algebras RTG Summer Research Program for Undergraduates is an 8-week NSF funded program where participants will attend lectures and problem sessions, work on research problems, and give presentations about their work. For more information visit: math.berkeley.edu/~gardiner/rtg2013.html.

**Environment America Fellow:** Environment America works to advance the environmental vision and values for clean energy and water, wilderness protection, healthy food and sustainable agriculture, and more. Environment America fellows go through a two-year crash course in environmental activism, organizing, and advocacy. For more information, contact Michelle Hesterberg ‘11, a current Environment America fellow, at mhsterberg@environmentamerica.org or by phone at 612-331-3315. Applications are due February 15.

**Epic Systems:** Epic Systems is a healthcare software company. On Tuesday, February 12 from 6:00pm-7:00pm in Leighton 304, come hear Janet Campbell ‘03 present an in-depth case study followed by a general info session with pizza (led by Carl Smith ‘11) for all roles/majors from 7:00pm-7:30pm. Resumes accepted. Contact Tanya Bui (tbui@epic.com) with any questions.

**Problems of the Week**

1. Consider the following two-player game. Starting with the number 0, the players take turns adding to the current sum; whenever it’s your turn, you can choose whether to add 4 or to add 7. For instance, the first eight turns might result in the numbers:
   4, 11, 15, 19, 23, 30, 37, 41.
   If on your turn you can make the new sum end in two zeros (in other words, if your turn leaves a multiple of 100), you win.

   Assuming best play by both sides, is there a winning strategy for either player, or should the game go on indefinitely? If there is a winning strategy, should you move first or second to win, and what will be your strategy?

2. Suppose a particle starts at the point (0,1) in the plane, heading due northeast, and continues to travel at some constant speed such that at any point \((x, y)\), its direction is 45 degrees to the right from the direction that is away from the origin. (For example, at the initial point (0,1), the direction away from the origin is due north, and so the particle starts off heading northeast.)
   a) Explain why the particle will eventually leave the first quadrant.
   b) At what point will the particle be when it leaves the first quadrant?

Good and bad news this week. Nice solutions continue to arrive from several people. Solutions to the problems from January 18 have been posted in the hallway outside CMC 217, and nearby there are also solutions to the last set (from November 9) of fall term; fans of generating functions may enjoy looking at the latter. The bad news is that the end of midterm break brought a series of deadlines, and now with press time upon us I haven’t had enough time to study all the solutions that have come in recently. So, with sincere apologies, acknowledgments will have to wait until next week. Do keep the solutions coming, though!

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**Editors:** Gabriella Newman
Bob Dobrow

**Problems of the Week:** Mark Krusemeyer

**Subscriptions & Web:** Sue Jandro