Welcome Back
Ice Cream Social Today!

The opening of the year departmental ice cream social will be held, rain or shine, today, Friday (September 14) at 4 pm. There is no agenda, just a chance to enjoy tasty treats, make new friends and reconnect with old ones. All friends of mathematics are welcome. We will hope for fair weather and, in that event, set up outside the front door of CMC. If the weather is foul, we'll move inside to the building lobby.

State of the Faculty

Have you noticed the changes in the mathematics faculty this term? Mark Krusemeyer and Helen Wong are on sabbatical and Katie St. Clair is on maternity leave. We are proud to announce three new members to our faculty, Rafe Jones, Andrew Gainer-Dewar, and Brian Shea. We also welcome back Ted Vessey from St. Olaf. The Goodsell Gazette will be introducing these new professors over the next couple of weeks. First up, Andrew Gainer-Dewar:

Andrew finished his Ph.D. at Brandeis University, got married, and moved to Northfield all in the past couple of months! He is teaching two sections of Calc I and directing a comps group. Andrew will be playing trumpet with the campus jazz band this year, and, as a hobby, he likes to brew beer. Welcome to Carleton, Professor Gainer-Dewar!

GRE Prep

Folks interested in joining practice sessions for the math subject GRE test should consider joining Steve, Rafe and Andrew in CMC 328 during 6a on Mondays throughout this term. We’ll work practice problems and refresh your knowledge of core concepts. These sessions should prove useful even if you do not plan to take the exam until spring (or even next fall). By the way, today (September 14) is the last day to register for the October 13 test date.

Putnam Registration Time is Here!

Although fall term is just getting underway, it's already time to register for this year's William Lowell Putnam Mathematical Competition. As many of you know, the “Putnam” is a challenging exam focusing on mathematical insight and ingenuity; typically several thousand undergraduates across the United States and Canada participate, and the median score is usually less than 10 out of a possible 120. Whether you've taken the exam before, or are considering taking it for the first time, you'll probably enjoy getting experience with past Putnam problems at our weekly problem-solving group, which meets every week on Wednesday, from 4:30 pm to 5:30 pm in CMC 328.

This year the Putnam will be held on Saturday, December 1. That's during our winter break, but we'll gladly make arrangements for you to take the Putnam at another college or university. If you'd like to sign up, contact Eric Egge in person or via email (eegge). If you'd like more infor-
mation, see the bulletin board outside Math Skills, where a brochure will soon be posted, or talk to Eric. Don't delay; although the Putnam is still more than two months away, we have to submit a participant list soon, so your deadline for signing up is Friday, September 28.

**Looking for Intriguing Math Problems?**

Are you interested in challenging math problems that are more about insight and ingenuity than extensive knowledge or computational skill? If so, then you should join the weekly problem solving group. The group meets every Wednesday from 4:30-5:30 pm in CMC 328, and you are welcome to attend as many meetings as you like. This term we’re concentrating on “preparing” for the Putnam Competition (December 1) and for the team contest organized by the North Central Section of the MAA (November 10). Putnam details are in this issue of the Gazette, while NCS contest information will appear in a future issue. Any questions? Contact Eric Egge (eegge) or Rafe Jones (rfjones).

**Seeking Math Tutors at Northfield High School**

Looking for a little community engagement? Want to help high school students with math? Great! Northfield High School is looking for Carleton students to help tutor high schoolers and we need a lot of help with math. If you're interested, there are two main ways to get involved:

1. The high school can set you up with a student to work with one-on-one. You will meet whenever/wherever works for you and the high school student.
2. You can attend the high school's after-school homework help sessions. These are open to all high schoolers and we always need good tutors in them. They run from 3-4:30 pm on Mondays, Tuesdays, and Thursdays. You're welcome at any or all of them and for however long works for you.

This is a great way to collaborate with the greater Northfield community and have some fun. For more details, contact: Dan Read '12
dan.read@nfld.k12.mn.us (507-301-6179)

**PROBLEMS OF THE WEEK**

Welcome to a new year of weekly problems! Our usual POW editor is on sabbatical this fall so I will be doing my best to fill in for him. For those of you who are new (to Carleton, or to reading the Goodsell Gazette), here’s how this works: two problems will appear here each week that we are in session. Eventually, solutions to these problems will be posted in the CMC. (Right now, you can find all problems posted last spring, along with detailed solutions for them, in the hallway outside CMC 218. Later this term these will be replaced by solutions to this fall’s problems). You are encouraged to submit your own solutions. This can be done by putting them in my mailbox in the CMC, or by sending solutions via email to gnelson. If you solve a problem correctly (before my own solution is posted, of course), your solution will be acknowledged in this space, and you will also be eligible for a modest prize. In order for your solution to be mentioned in the Gazette that comes out at the end of a particular week, it should reach me by Tuesday evening of that week.

Ready? Here we go!

1. Amazingly, *Mathematica* can compute $2012^{2011}$. However, $2012^{2011}^{2010}$ is too much for it to handle. Find, with justification of course, the units digit of $2012^{2011}^{2010}$.

2. Let $p$ be an odd prime. Prove that the integer part of $(\sqrt{5} + 2)^p - 2^{p+1}$ is divisible by $20p$.

- Gail Nelson

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**Editors:** Gabriella Newman
Bob Dobrow

**Problems of the Week:** Gail Nelson

**Subscriptions & Web:** Sue Jandro