It’s Time to Qwirkle

Students—don’t let the faculty show you up! Sign-ups are still open for the departmental Qwirkle tournament, and the showing from students so far has been paltry. Sign up by Monday, April 4th, either by e-mailing Deanna or placing your name on the sign-up sheet on the 2nd-floor Math Department white board. The tournament is set to begin the following week, on Monday, April 11th. The time commitment is minimal and flexible, for those of you with intractably busy schedules. You will set up matches with your opponents at a mutually-agreeable time, and the game does not take long to play. Qwirkle is described as a cross between Set and Scrabble; if that piques your curiosity, you can still try it out with your friends in the Math Skills Center.

Work for the Math Department

Interested in working for the Mathematics Department? The department has a variety of positions to fill for next year. Positions include the following: Mathematics course grader, Mathematica or statistics lab assistant, Math Skills Center tutor, and Goodsell Gazette editor. The job descriptions and application can be found at http://apps.carleton.edu/curricular/math/resources/student_worker_application/

Last Call for Pi Mu Epsilon

Are you interested in finding out about the mathematical research that students around the region have been doing? Would you like to learn more about some of Euler’s remarkable mathematics? If you answered yes to either of these questions, then you should consider attending this year’s Pi Mu Epsilon conference. The conference is Friday and Saturday, April 8-9; we’ll leave campus Friday afternoon and return to campus by 3 PM on Saturday. The conference includes a variety of talks by undergraduate researchers from around our area, on several different topics. The keynote speaker is William Dunham of Muhlenberg College, who is a world expert on the life and mathematics of Leonard Euler. Professor Dunham will be giving two talks on Euler and his work. If you’re interested in attending this conference, please let Eric Egge (eegge) know right away. For more information, contact Eric or check out the conference website at www.csbsju.edu/math/pi_conference.

Putnam Results are In!

Congratulations to Danny Chen, who placed among the top 188 contestants in last December’s Putnam competition, and to Frank Firke and Jonathan Hahn, both of whom placed among the top 500 contestants. This year 4296 students (including Matt Adams, Ben Anderson, Xin Chen, Daoji Huang, Gracie Jaffe, Jie Lin, Dylan Peifer, Tung Phan, Alex Rusciano, and Ken Wang) from 546 colleges and universities took the exam. Nationally, the median was 2 (out of a possible 120) and the high score was 120. Kudos to all who took the exam!
WorldTeach Seeks Math Grads

World Teach is a non-profit organization based at Harvard University that provides volunteer educators to Ministries of Education in the developing world to meet educational needs abroad. This year, we have a high need for talented graduating math and science teachers to address the severe brain drain in Guyana. We are currently recruiting volunteers to serve for one academic year, starting in August, as teachers of Biology, Chemistry, Math, and Physics at some of the best public secondary schools in Guyana, one of the poorest nations on the South American continent. These teachers would be providing instruction in sought-after subjects that would otherwise go untaught. If you are interested, contact Maki Park, the Guayana Program Manager at WorldTeach, at mpark@worldteach.org or by phone at 617-495-5527. For more information, you can visit the organization’s website at www.worldteach.org.

PROBLEMS OF THE WEEK

1. Note that the sequence of numbers

1, 4, 2, 5, 7, 10, 13, 16, 14, 17, 15, 12, 9, 11, 8, 6, 3, 1

has the following properties:
   i) it starts and ends with 1;
   ii) the (absolute value of the) difference between two successive numbers in the sequence is always either 2 or 3;
   iii) not counting the initial and final 1’s, the numbers in the sequence are exactly the integers between 2 and 17 (inclusive), and those occur once each.

Here’s the question: For which values of the integer \( n > 1 \) does a sequence with these properties exist, where in property iii) 17 is replaced by \( n \)?

2. a) Let three lines be drawn independently and in random directions through the origin in the plane. (The lines will each extend in two opposite directions from the origin; “random” means that given two equal angles with vertex at the origin, each line is equally likely to be inside one as inside the other.) What is the probability that all the angles formed at the origin by adjacent pairs of lines will be acute? (For example, if the lines are \( y = 0 \), \( y = x \), \( y = 2x \), then the angle formed by \( y = 2x \) and \( y = 0 \) as an adjacent pair of lines will not be acute. However, if the lines are \( y = 0 \), \( y = 2x \), \( y = -2x \), then all angles at the origin will be acute.)

b) Same question, with “three lines” replaced by “\( n \) lines.”

Along with dwindling snow patches and (I hope) fresh academic energy, the new term has brought a slightly revised production schedule for this newsletter. As a result, solutions to problems should now reach my mailbox in the CMC by noon on Tuesday if you want to be sure that they can be acknowledged in the next Gazette. Of course, as always, I’m looking forward to getting your solutions.

- Mark Krusemeyer