St. Olaf Mathematics Department

Math Mess

Department of Mathematics
St. Olaf College
Northfield, MN 55057

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This Week's Mathematics Colloquium

Title: Hungarian Rhapsody
Speaker: Cliff Corzatt
Time: Thursday, Nov 8th, 2 pm
Place: SC 186

This Week's Colloquium

In recent years over 1/3 of all Mathematics Majors have studied in Budapest during their 4 years at Olaf. This week's colloquium presents a mathematician's tour of this great Central European City, with brief presentations on the city itself, the Budapest Semester, the Interim in Budapest, and the legacy of the great Hungarian problem solver Paul Erdos. The music of Hungary will also be featured, including everything you always wanted to know about the cimbolam but were afraid to ask. Of course, everyone is invited, but particularly those thinking about studying in Hungary.

This week's speaker, Cliff Corzatt, is ½ of the esteemed Problem Guys of the Math Mess. Before coming to St. Olaf, Cliff taught high school mathematics in the United States and in Nigeria with the Peace Corps. He later earned an M.A. from Northern Illinois University and a Ph.D. in number theory from the University of Illinois. His main mathematical interests are number theory, combinatorics, algebra, and problem solving (and promoting the St. Olaf Math Department programs in Hungary and Hungarian culture in general).

Coming Attraction

The annual **"To Be or Not To Be"** extravaganza is coming! Mark your calendar for next Tuesday (Nov 13), when members of the mathematics department faculty will discuss the math major, statistics and computer science concentrations, graduate school, summer opportunities and all sorts of other math related stuff. You will also have a chance to hear and talk with math major alums who are out in the real world and have real jobs. On top of all of this, the math faculty will be serving sub sandwiches and root beet floats!

Festivities commence at 5pm in SC 282. Don't miss it!

Carlson Contest Winners

Congratulations to this year's Carlson Contest winners!

Open Division

1st Place: Brett Werner, Mike Zahniser, and Robert Orme

2nd Place: Matt Handley and Jason Saccomano

3rd Place: Soren Strom-Jensen, Jerad Parish and Nathan Hubbell

Calculus Division

1st Place: Jessica Rustad, Brian Peters, and Nick Larson

2nd-3rd Place tie: The team of Rachel Fonstad, Andrea Boyum, and Radna Shenoy and the team of Kari Anderson, Alison Newgard, and Laura Eckstien.

Each 1st place team member receives $35, each 2nd place person get $25 and the third place guys will have to settle for $15 a piece.

Congratulations again to all of the winners and a hearty thanks to all who participated. Winners may pick up their prize from Donna in the Math Office any time after November 6.

Problem Solving and Practice

Don't forget, the MAA North Central Section problem solving contest is this Saturday, November 10th, from 9 a.m. to 12 p.m. Those interested should e-mail molnar **last week**. In particular, we would love to hear from our Carlson contest prizewinners (see related article above).

Last week's "practice session" was fun; we got to talk about some interesting stuff like the fact that $e^{i\theta} = \cos\theta + i \sin\theta$, so we'll do that again this Wednesday from 7:30 to 9:30 p.m. in SC130 (really 130 this time; not 129). There will be some problems to work on, but feel free to bring your own as well.

Last Week's Solution

Last week's problem: Let n be a positive integer. Is it possible for 6n distinct straight lines to be situated so as to have at least $6n^2 - 3n$ points where exactly three of these lines intersect and at least 6n+1 points where exactly two of these lines intersect? Of course, justify your answer.

Solution: NO. The problem was solved by **Paul Zorn**, **Robert Orme**, **Thomas Loone**, **Bob Breid**, **Bob Hanson**, **Matt Lafferty** and **Jason Saccomano**.

Any 6n lines determine at most $C(6n,2)=18n^2-3n$ intersections, including multiplicity. Each three-line intersection involves 3 line pairs; there are $6n^2-3n$ of these, so they account for $3*(6n^2-3n) = 18n-9n$ line pairs. The remaining 6n+1 two-line intersections add 6n+1 line pairs to this total, to give $3*(6n^2-3n) + 6n+1 = 18n^2-9n + 6n + 1 = 18n^2 - 3n + 1$.

Problem of the Week

This week's POW is from last year's NCS competition.

A particle is moving along a straight line so that its velocity at time t is $3t^2$. At what time t during the interval $0<t<9$, is the velocity the same as the average velocity over the entire interval?

*** Please submit all solutions to Cliff Corzatt (corzatt@stolaf.edu) by noon on Friday.

If you would like to receive a copy of the Math Mess in your P.O. Box weekly, please e-mail Donna Brakke at brakke@stolaf.edu.

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