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: The Problem Guys Show
Starring: Cliff Corzatt and David Molnar
Time: Thursday, Oct 18th, 4 pm
Place: SC 182

This Week's Colloquium

This week's colloquium deals with Mathematical Problem Solving. Selected problems from this week's Carlson Contests will be discussed, highlighting some far-reaching principles which can be applied in a number of different settings at a variety of levels. There will be something for everybody. You might even pick up a trick or two that will be useful for future contests.

The Problem Guys began their career in "The Road to Mathematical Induction" in 1941. This was followed by "The Road to Pigeonhole" in 1943, and the widely misunderstood "The Problem Guys' Red White and Blue salute to Sperner's Lemma" in 1944. After this, the Problem Guys went underground, living in Paris to avoid McCarthyism in the States, and paying more attention to wine, women, and song than Combinatorics. After a fifty-year hiatus (time flies...) they have returned to St. Olaf to write problem contests.

Carlson Contest

Don't forget, the Carlson Contest is being held this Tuesday and Wednesday. This is a competition for St. Olaf students in teams of up to three. There are two contests; the so-called "Calculus" contest is for students who have not taken a 200-level math course. Both versions will feature 8 to 10 problems in a mixture of Calculus and other topics, some more like the Sven and Ole problem from last week's Mess.

The prizes for each contest are $35 to each member of the 1st place team, $25 for each member of the 2nd place team, and $15 for each

member of the 3rd place team. It is not necessary to pre-register by e-mailing molnar@stolaf.edu, but we promise you Smarties if you do.
The contest problems can be picked up any time between 4 and 7 either Tuesday or Wednesday evenings from the first floor of OMH, and you will have one and a half hours to work on the problems. You should not talk about the problems until the contest is over, but (see information on this week's colloquium).

For those of you not on a team or wanting to do the contest individually, please show up at 6 on either Tuesday or Wednesday evening to pick up the contest problems and connect with other "free agents" like yourself.

What a Rush!

Isn't it great to have that flash of insight that cracks a tough word problem? Cool to actually understand a proof, or to find an algebraic pattern that explains your geometric intuition? If you like these and other mathematical "highs," there is one more "rush" that you really should experience: the satisfaction of helping someone else to experience the thrill of mathematical insight! Would you like to give it a try, and get paid for it to boot?

As luck would have it, the Academic Support Center (ASC) is currently expanding its pool of mathematics tutors. No need to be on work study, and no previous tutoring experience necessary. Just visit the ASC in the Old Main Annex to ask any questions you may have, or to apply for a tutoring position. Someone could use *your* help.

Last Week's Solution

Last week's problem: Sven and Ole stand at opposite corners of a rectangular field, 8 rods in length by 1 rod. Along one of the long edges of the field runs a river of chocolate syrup, along the other a river of milk. According to custom, each must cross the field to retrieve the liquid from somewhere on the other side, and then the two will meet somewhere in the middle of the field and make chocolate milk. When Sven and Ole meet, the total distance they have traveled turns out to be the minimum possible. This is the square root of what integer?

Solution: The solution is 73 (in honor of Barry Bonds number). Congratulations to **Michael Zahniser**, **Tom Loome**, **Adam McDougall**, **Jerad Parish**, **Nathan Hubbell**, **Paul Tlucek**, **Robert Orme** and **Matt Bartalatus** who solved the problem, and of course, to **Barry Bonds**. (For a solution without words, draw a 3 by 8 rectangle divided with two equally spaced horizontal lines and a diagonal.)

Problem of the Week

A mouse crawls through a maze in the shape of an equilateral triangle divided (by straight lines parallel to the sides of the larger triangle) into 64 smaller triangles. There is a piece of cheese in the center of each of the smaller triangles. Once the mouse has visited a particular triangle, he will not visit it again, since it no longer contains cheese. What is the greatest number of pieces of cheese which the mouse can eat in a single continuous path through the maze?

*** 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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