

## Join the Lafayette Problem Group!

*Everyone is welcome! Try to get solutions, or good ideas, or even just bad ideas, for some of these problems by next week's meeting:*

**Thursday, September 11**  
**Lunchtime in Pardee 216**

**Problem 1:** On a table is a row of fifty coins of various values. Alice picks a coin from one of the two ends of the row and puts it in her pocket; then Bob chooses a coin from one of the remaining ends and puts it in his pocket; then Alice chooses from one of the two ends again; and so on, until Bob pockets the last coin. Can Alice always choose her coins in a way to insure that she takes in at least as much money as Bob?

**Problem 2:** Snow started falling at a constant rate before noon. At noon, a snowplow started plowing snow. At 1:00, the plow had traveled 2 miles. At 2:00, the plow had traveled 3 miles. When did the snow begin to fall?

**Problem 3:** A set  $S$  contains the numbers 0 and 1. It also contains the average of every finite subset of numbers in  $S$ . Describe  $S$ .

**Problem 4:** Find a polynomial with integer coefficients that has the number  $\sqrt{2} + \sqrt{3}$  as a root.

**Problem 5:** Is it possible to color each point in  $\mathbb{R}^2$  with one of nine colors (red, blue, brown, black, yellow, orange, purple, pink, and fuschia, please!) so that no two points that are exactly one inch apart have the same color?

**Problem 6:** *Here's a problem from a recent Putnam exam. This year's Putnam exam will be held on the first Saturday in December. Registration for the exam will occur in September.*

Let  $R$  be the region consisting of the points  $(x, y)$  of the Cartesian plane satisfying both  $|x| - |y| \leq 1$  and  $|y| \leq 1$ . Sketch the region  $R$  and find its area.

**Remember to visit [www.lafayette.edu/~math!](http://www.lafayette.edu/~math!)**