

name: _____ e-mail: _____

check if faculty: _____ class and professor: _____

The problems of the week are available online at
<http://www.math.jmu.edu/~rosenhjd/POTW.html>.

Problem of the Week Eight

It was not until 1933 that probability theory received a proper axiomatic foundation. That was the year the Russian mathematician Andrey Kolmogorov published his masterwork *Foundations of the Theory of Probability*. It was this work more than any other that established probability as a branch of mathematics as worthy of respect as algebra or geometry. He also made seminal contributions to the philosophy of probability. In other words, he not only laid out the abstract principles on which a rigorous theory of probability must be based, he also supplied a vision for how those principles linked up with real-world concerns. We have come a long way from our subject's origins in simple games of chance and the mere enumeration of equally likely cases.

This is normally the place where I provide a humorous quote from or about the subject of the week. Alas, my usual sources have let me down completely. So, if anyone knows a good Kolmogorov anecdote, let me know. In the meantime, how about a good old fashioned coin tossing problem:

Alice and Donald find a quarter lying on the street. To decide who gets it, they devise the following procedure. Alice will toss the coin. If it comes up heads, she gets the coin. Otherwise, Donald has to toss it. If it comes up heads this time, he gets the coin. Otherwise, the coin goes back to Alice. This goes on until someone tosses a head. What is the probability that Alice gets the coin?

Solutions are due **Friday, April 11** by 5:00 to Jason Rosenhouse in Roop 121. One weekly winner will receive a five dollar gift card to Greenberry's, and will be chosen randomly from among the correct answers. As always, please give a line or two of explanation to accompany your answer.