

BI-CO MATHEMATICS COLLOQUIUM

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*“Dividing a system of weights into two groups
of equal mass”*

Monday, February 2, 2009

Talk at 3:30 pm – Park 338
Tea at 3:15 – Park 355, Math Lounge

Abstract:

An old elementary problems says: In a system of 101 weights with integer masses that add up to 200, there always exists several weights of total mass 100. The standard proof is a textbook application of the pigeonhole principle. However, 101 is not the least number of weights that guarantees the stated property, and the pigeonhole principle does not readily apply to systems with fewer weights.

Refining this problem and generalizing it leads to questions somewhat more involved than expected. It takes a systematic approach to obtain answers, which are far from evident. The mathematical content is completely accessible to freshman and sophomore level students. The talk does not assume any special technical background. However, it does assume readiness for active participation.

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