

Think It Over



This section of Resonance is meant to raise thought-provoking, interesting, or just plain brain-teasing questions every month, and discuss answers a few months later. Readers are welcome to send in suggestions for such questions, solutions to questions already posed, comments on the solutions discussed in the journal, etc. to Resonance Indian Academy of Sciences, Bangalore 560 080, with "Think It Over" written on the cover or card to help us sort the correspondence. Due to limitations of space, it may not be possible to use all the material received. However, the coordinators of this section (currently R Nityananda and C S Yogananda) will try and select items which best illustrate various ideas and concepts, for inclusion in this section.

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Buffon's Needle Problem

Consider a plane ruled with parallel lines that are a distance D apart. Take m needles of length L each, $L \leq D$. Drop them all randomly on this plane. Count the number of needles that come to rest crossing any of the lines. Repeat this n times. Let x_1, x_2, \dots, x_n be the number of needles that come to rest crossing lines in these m trials. If you are told that, for large values of m and

n , $\frac{2L}{D} mn / \sum_{i=1}^n x_i$ will be close to $\frac{2}{\pi}$ what will be your reaction?

