

Rockhurst University Mathematics Problem of the Month

Congratulations to Peter Simone, winner of October's contest. Peter wins a prize from the Problem of the Month collection. Honorable mention goes to Fr. Kinerk (no Colombo again?). The contest is open to any currently enrolled Rockhurst student. The winner will be chosen according to who has the best solution (not just answer) to the problem. Ties will be resolved by considering the order in which the solutions were received.

Solutions should be submitted to Keith Brandt (Richardson 120) by the end of each month. The winners will receive wonderful prizes, so give these problems some thought!

Problems For November 2003:

1. (Suggested by Prof. Kevin Burger) Find a closed formula for the following sum:

$$\begin{aligned} &1 \\ &+ 1+1 \\ &+ 1+1+2 \\ &+ 1+1+2+2 \\ &+ 1+1+2+2+3 \\ &+ 1+1+2+2+3+3 \\ &\cdot \\ &\cdot \\ &\cdot \\ &+ 1+1+2+2+ \dots + (q-1)+(q-1)+q \\ &+ 1+1+2+2+ \dots + (q-1)+(q-1)+q+q \end{aligned}$$

2. Ben's favorite CD is Led Zeppelin's fourth album. The eight songs on the CD are Black Dog, Rock & Roll, The Battle Of Evermore, Stairway To Heaven, Misty Mountain Hop, Four Sticks, Going To California, and When The Levee Breaks. Ben decides to play the CD using the scramble feature on his CD player (it will play the eight songs in some random order). What is the probability that Black Dog and Four Sticks get played back-to-back (in either order)?