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At the request of Professor Lester Lange and with the permission of Professor Leonard Gillman, we have simply lifted Professor Gillman's delightful, melodic note, below, from page 375 of the June-July 1982 issue of *The American Mathematical Monthly*. Students need to know that the well-known limit mentioned involves the golden mean.

Gerald E. Bergum
Editor

MISCELLANEA

77.

Leonid Hambro, the well-known pianist, told me recently that he was about to enter a billiards tournament in which he would play 12 games; he knew the opposition, he said, and he estimated his odds for winning any particular game as 8 to 5. "What do you think your chances are of sweeping all 12 games?" I asked him. "They're pretty small," he said. "The probability that I'll win any one game is 8/13. To find the probability that I'll win all 12 you have to take 8/13 to the 12th power. That's a pretty small number."

He did not have a calculator in his pocket. But he had a pencil and a pad—and an inspiration. "Hey!" he said. "Those are Fibonacci numbers. The ratio of successive terms approaches a limit (about .618), and very fast: even a ratio near the beginning like 8/13 is very close to the limit." He scribbled some additions. "The 12th Fibonacci number after 8 is 2584. Therefore 8/13 to the 12th power is approximately the same as 8/13 times 13/21 and so on, twelve times; everything cancels out except the 8 in the beginning and the 2584 at the end. So the probability that I will win all 12 games is about 8/2584, or about 1/300. See, I told you it was pretty small."

—Leonard Gillman
The University of Texas at Austin