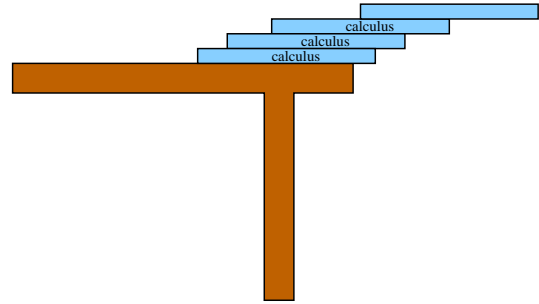


Calculus Problem Of the Week

April 24 — 30, 2006

Imagine a pile of n books of length 1 stacked on a table in such a way that the top book overhangs the one below it by as much as possible. Clearly the overhang would be $1/2$. The next book from the top overhangs the one below it by as much as possible, and so on, and the bottom book overhangs the edge of the table by as much as possible. Let S_n be the amount by which the top book overhangs the edge of the table.



1. Find a general formula for S_n .
2. Determine how large n must be so that no part of the top book is over the table.
3. How far of the table edge can we reach by the top book?