$$b_k = \frac{1}{\sqrt{-11}}\left\{\left(\frac{1+\sqrt{-11}}{2}\right)^k - \left(\frac{1-\sqrt{-11}}{2}\right)^k\right\}, \qquad k \ge 1.$$

Thus

$$b_k = \frac{1}{2^{k-1}} \sum_{j=0}^{\left[\frac{k-1}{2}\right]} \binom{k}{2j+1}(-11)^j, \qquad k \ge 1.$$

The desired result follows by observing

$$b_{6n+3} = \frac{1}{2^{6n+2}}\, c_n \quad .$$

Editorial Note: Please submit solutions for any of the problem proposals. We need fresh blood!

A GOLDEN SECTION SEARCH PROBLEM

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After tiring of using numerous quadratic functions as objective functions for examples in my mathematical programming course, I posed the following problem for myself: Design a unimodal function over the (0,1) interval which is concave, has a maximum in the interior of (0,1), and is not a quadratic function. The purpose was to demonstrate numerically the golden section search.*

My first thoughts were to add two functions which are concave over the (0,1) interval with the property that one goes to $-\infty$ at 0 and the other goes to $-\infty$ at 1. My two initial choices were $\log x$ and $1/(x - 1)$. The golden section search starts at the two points $x_1 = 1 - (1/\phi)$ and $x_2 = 1/\phi$ where $\phi = (1 + \sqrt{5})/2$. After searching with 8 points, I noticed that the interval of uncertainty still contained the first search point so I thought it about time to find the location of the maximum analytically. I was dumfounded to discover that if I continued indefinitely with the search my interval of uncertainty would still contain the initial search point.

*Douglas J. Wilde, Optimum Seeking Methods, Prentice Hall, Inc. (1964).