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DEPARTMENT OF MATHEMATICS

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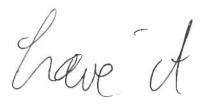
Diliman, Quezon City

03 February 1992

N. J. A. Sloane Room 2C-376 AT & Bell Laboratories Murray Hill, NJ 07974 U. S. A.

Re: Integer Sequences

Dear Prof. Sloane,



I have read the call for new sequences in the October 1991 issue of The American Mathematical Monthly. May I share the sequence $(u_n) = (1,2,4,7,11,17,27,44,72,117,189,305,493,798,...)$

which comes from the combinatorial sum

$$\begin{bmatrix} \frac{n+2}{4} \end{bmatrix}$$

$$\sum_{n=0}^{\infty} \begin{bmatrix} n+2-2h \\ 2h \end{bmatrix} , n \ge 1.$$

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It satisfies the difference equation

$$\Delta^2 u_{n+2} = u_n , n \ge 1,$$

and has a closed form given by

$$u_{n} = \frac{1}{2\sqrt{5}} \left(\frac{1+\sqrt{5}}{2} \right)^{n+3} - \frac{1}{2\sqrt{5}} \left(\frac{1-\sqrt{5}}{2} \right)^{n+3} - \frac{1}{\sqrt{3}} \sin \frac{n\pi}{3}, \ n \ge 1.$$

References:

- (1) Tan, E.L., On the Cycle Graph of a Graph and Inverse Cycle Graphs, Ph.D. Dissertation (unpublished). University of the Philippines, Diliman, Quezon City, 1987.
- (2) Tan, E.L., On Fibonacci Numbers and Cycle Graphs, Matimyas Matematika (Published by the Mathematical Society of the Philippines), Vol. 13, No. 2, May 1990, 1-4.

Very truly yours,

Julyn L. Tan

ÉVELYN L. TAN Associate Professor