

ELEMENTARY PROBLEMS AND SOLUTIONS

[see p. 34 of *Fibonacci and Lucas Numbers* by Verner E. Hoggatt, Jr. (Boston: Houghton-Mifflin, 1969)]. Since $0 < b^2 < 1$, $0 < b^{2n} < 1$. It follows that

$$[aF_{2n}] = F_{2n+1} - 1.$$

But

$$F_{2n+1} - 1 = F_2 + F_4 + F_6 + \cdots + F_{2n}$$

by (I_6) (*Ibid.*, p. 56). Hence, the Zeckendorf representation for $[aF_{2n}]$ is

$$F_2 + F_4 + F_6 + \cdots + F_{2n}$$

completing our solution.

Also solved by Paul S. Bruckman, L. Cseh, L. A. G. Dresel, Herta T. Freitag, L. Kuipers, Imre Merenyi, Sahib Singh, Lawrence Somer, J. Suck, and the proposer.

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8. E. Lucas. *Théorie des nombres*. Paris: Blanchard, 1961, ch. 18.
9. K. Subba Rao. "Some Properties of Fibonacci Numbers." *Amer. Math. Monthly* 60, no. 10 (1953):680-84.
10. A. Tagiuri. "Recurrence Sequences of Positive Integral Terms." (Italian) *Period. di Mat.*, serie 2, no 3 (1901):1-12.
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12. N. N. Vorobév. *The Fibonacci Numbers* (tr. from Russian). New York, 1961.

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