Eric F. Bravo, Jhon J. Bravo, and Florian Luca
Coincidences in Generalized Lucas Sequences,
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Abstract

For an integer $k \geq 2$, let $(L_n^{(k)})_n$ be the $k-$generalized Lucas sequence which starts with $0, \ldots, 0, 2, 1$ (k terms) and each term afterwards is the sum of the k preceding terms. In this paper, we find all the integers that appear in different generalized Lucas sequences, i.e., we study the Diophantine equation $L_n^{(k)} = L_m^{(\ell)}$ in nonnegative integers n, k, m, ℓ with $k, \ell \geq 2$. The proof of our main theorem uses lower bounds for linear forms in logarithms of algebraic numbers and a version of the Baker–Davenport reduction method. This paper is a continuation of the earlier work [4].