Abstract

We investigate differences of the form \( \prod_{i \geq 1} g_{n+r_i}^{a_i} - \prod_{i \geq 1} g_{n+s_i}^{b_i} \), where \( g_j = g_j(x) \) denotes the \( j \)th gibbonacci (Fibonacci, Lucas, Pell, or Pell-Lucas) polynomial; \( n, r_i, \) and \( s_i \) are integers; \( a_i, b_i \geq 0; \sum a_i = \sum b_i \) denotes the order \( m \) of each product, and \( m = 2 \) or \( 3 \). This investigation yields interesting byproducts.