QUADRATIC APPROXIMATION OF GENERALIZED TRIBONACCI SEQUENCES

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Abstract

In this paper, we give quadratic approximation of generalized Tribonacci sequence $\{V_n\}_{n \geq 0}$ defined by $V_n = rV_{n-1} + sV_{n-2} + tV_{n-3}$ ($n \geq 3$) and use this result to give the matrix form of the n -th power of a companion matrix of $\{V_n\}_{n \geq 0}$. Then we re-prove the cubic identity or Cassini-type formula for $\{V_n\}_{n \geq 0}$ and the Binet's formula of the generalized Tribonacci quaternions.

Keywords: Binet's formula, companion matrix, generalized Tribonacci sequence, Narayana number, Padovan number, quadratic approximation, Tribonacci number.

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