
ON LEONARDO VECTORS

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ABSTRACT

In [3], the author introduced the vector representations of Fibonacci numbers, establishing several properties by using results in linear algebra, extending this framework to two-dimensional spaces. Fibonacci vectors were also explored in [1]. Subsequent the Horadam vectors was introduced their fundamental algebraic properties are derived, [1]. Recently, in [4], the authors introduced and studied the Pell and Pell–Lucas vectors, given the vectorial properties of these generalized vectors, as the cosines of the angles between these vectors.

In this work, we introduce the n -th Leonardo vector of length m , that is the vector whose the components are the n th through $(n + m - 1)$ -st Leonardo numbers. From linear algebraic perspective, we study them in 2 and 3 dimensions, and define the vector product and the inner product. Moreover, we derive the recurrence relation and the matrix representation, establishing properties and identities for these new class of vectors.

Keywords Fibonacci vectors · Leonardo numbers · Linear Algebra

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