

k-JACOBSTHAL SEQUENCE AND ITS CATALAN TRANSFORM

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Abstract: This Paper concerns k -Jacobsthal Sequence and its Catalan Transform to obtain special integer sequence after that we relate the Henkel Transform to catalan transform of k -Jacobsthal.

Keywords and Phrases: k -Jacobsthal Numbers, Catalan Numbers, Henkel Transform.

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1. Introduction

The Fibonacci numbers are used in as a variety in sciences like biology, demography or economy. In current situation Fibonacci, Lucas, Pell, Pell-Lucas, Jacobsthal, Jacobsthal-Lucas sequence were generalized for any positive real number k . Also the study of the k -Fibonacci, k -Lucas, k -Pell, k -Jacobsthal and k -jacobsthal-Lucas sequence appeared. Sergio Falco has given several formula for the some of Catalan transform of the k -Fibonacci sequence. Now we are present k -Jacobsthal sequence and its Catalan transform.

2. k -Jacobsthal Numbers

For some positive real number k , the k -Jacobsthal sequence is defined by

$$j_{k,n+1} = kj_{k,n} + 2j_{k,n-1}, \quad n \geq 1$$