He, Tian-Xiao; Shiue, Peter J.-S.

Identities for linear recursive sequences of order 2. (English) Zbl 07438942
Electron Res. Arch. 29, No. 5, 3489-3507 (2021)

Summary: We present here a general rule of construction of identities for recursive sequences by using sequence transformation techniques developed in [Electron Res. Arch. 28, No. 2, 1049–1062 (2020; Zbl 1443.05017)]. Numerous identities are constructed, and many well known identities can be proved readily by using this unified rule. Various Catalan-like and Cassini-like identities are given for recursive number sequences and recursive polynomial sequences. Sets of identities for Diophantine quadruple are shown.

MSC:
11B39 Fibonacci and Lucas numbers and polynomials and generalizations
11B83 Special sequences and polynomials
05A19 Combinatorial identities, bijective combinatorics
05A05 Permutations, words, matrices
05A15 Exact enumeration problems, generating functions

Keywords:
Girard-Waring identities; Catalan-like identity; Cassini-like identity; Diophantine quadruple; balancing polynomials; balancing numbers; Fibonacci numbers; recursive sequence; Lucas numbers; Pell numbers; Pell-Lucas polynomials; Chebyshev polynomials of the first kind; Chebyshev polynomials of the second kind; Pell polynomials; Lucas polynomials; Fermat polynomials; Fermat numbers

Full Text: DOI

References:

Edited by FIZ Karlsruhe, the European Mathematical Society and the Heidelberg Academy of Sciences and Humanities
© 2022 FIZ Karlsruhe GmbH


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.