

Emily J. Evans and Russell Jay Hendel
*Recursions and Characteristic Polynomials of the Rows of the Circuit
Array,*
Fibonacci Quart. **62** (2024), no. 4, 290–304.

Abstract

This paper extends our previous result on the circuit array, a two-dimensional array associated with the resistances in circuits whose underlying graph, when embedded in the Cartesian plane, has the form of a triangular grid. This paper extends the results of the prior paper by considering the circuit array in terms of polynomials instead of numbers as a means to facilitate finding patterns. The main conjecture of this paper states that the characteristic polynomials corresponding to the recursions of single or multivariable polynomial formulations of the circuit array exclusively have powers of 9 as roots. Several initial cases and one major sub-case are proven.