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On Tribonacci-Wieferich primes,

Abstract

The problem of the existence of Fibonacci-Wieferich primes has already been investigated by many authors. In this paper we shall study a similar problem for the sequence of Tribonacci numbers. Using matrix algebra, we find certain equivalent formulations of this problem and also derive some criteria that can be used to effectively test particular primes. A computer search showed that the problem has no solution for primes \( p \leq 10^9 \).