Jiří Klaška and Ladislav Skula
Mordell's Equation and the Tribonacci Family,
Fibonacci Quart. **49** (2011), no. 4, 310–319.

Abstract

We define a Tribonacci family as the set T of all cubic polynomials $f(x) = x^3 + ax^2 + bx + c \in \mathbb{Z}[x]$ having the same discriminant as the Tribonacci polynomial $t(x) = x^3 - x^2 - x - 1$. Using integral solutions of Mordell's equation $Y^2 = X^3 + 297$, we establish explicit forms of all polynomials in T. As the main result we prove that all polynomials in T have the same type of factorization over any Galois field $\mathbb{F}_p$ where p is a prime.