

Markoff m-Triples with k-Fibonacci Components

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Abstract-

We classify all solution triples with k -Fibonacci components to the equation $x^2 + y^2 + z^2 = 3xyz + m$, where m is a positive integer and $k \geq 2$. As a result, for $m = 8$, we have the Markoff triples with Pell components $(F_2(2), F_2(2n), F_2(2n+2))$, for $n \geq 1$. For all other m there exists at most one such ordered triple, except when $k = 3$, a is odd, b is even and $b \geq a + 3$, where $(F_3(a), F_3(b), F_3(a+b))$ and $(F_3(a+1), F_3(b-1), F_3(a+b))$ share the same m .

Index Terms- Markoff triples, generalized Markoff equation, k -Fibonacci numbers, Markoff tree.

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