Alan Filipin, Bo He, and Alain Togbé
On the $D(4)$-Triple $\{F_{2k}, F_{2k+6}, 4F_{2k+4}\}$,
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Abstract

Let k be a positive integer. In this paper we study the $D(4)$-quadruples

$$\{F_{2k}, F_{2k+6}, 4F_{2k+4}, d\},$$

where F_k is a kth Fibonacci number. We prove that if d is a positive integer such that the product of any two distinct elements of the set increased by 4 is a perfect square, then $d = 4F_{2k+2}F_{2k+3}F_{2k+5}$. Therefore, we prove the uniqueness of the extension of another $D(4)$-triple involving Fibonacci numbers.