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*On the $D(4)$-Triple* $\{F_{2k}, F_{2k+6}, 4F_{2k+4}\}$.

**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 $k$th 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.