As a result of Theorem 9 we have the following theorem, which may be called a Non-Four-Square Theorem.

Theorem 10. There does not exist a finite number n such that every positive integer can be represented as a sum of at most n Fibonacci squares.

6. VALUES OF m SUCH THAT $R(k) \neq m$

Using Lemma 7 and mathematical induction, it is possible to prove

$$R(k) \neq 5, \qquad R(k) \neq 7, \qquad R(k) \neq 13$$

for any positive integer k. It is suggested that there are an infinite number of integers m such that $R(k) \neq m$ for any positive integer k.

Further expansion of these ideas is contained in [3].

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$$N = \sum_{2}^{n} \alpha_k F_k ,$$

where $0 \le \alpha_k \le 1$ and if $\alpha_{k+1} = 0$, then $\alpha_k = 1$.

Zeckendorf's theorem provides the representation of N in terms of the minimum number of distinct Fibonacci numbers, and Brown's theorem provides the representation of N in terms of the maximum number of distinct Fibonacci numbers.

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