$3|F_{2n+1}$, which is impossible since 3 divides F_m if and only if 4 divides m. Hence, in this case also, there are no solutions.

Theorem 6: The equation $L_m = 3z^2 - 1$, $m \equiv 0 \pmod 2$ has only the solutions $m = 0, \pm 8$.

Proof: The proof is the same as that of Theorem 3, where we take into account the fact that $L_m \equiv -1 \pmod{23}$ if 16 divides n.

Corollary 2: (a) $L_m = 3z^2 + 1$ if and only if $m = 1, 3, 9$.

(b) $L_m = 3z^2 - 1$ if and only if $m = -1, 0, 5, 18$.

Remark: We can apply (26) and (27) as in [1] in order to obtain some statements about the solutions of diophantine equations of the form

$$DY^2 = AX^4 + BX^2 + C.$$

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Note: All the particular cases listed in (4.2) are referenced in Gould [1] except P. F. Byrd, "Expansion of Analytic Functions in Polynomials Associated with Fibonacci Numbers," *The Fibonacci Quarterly 1*, no. 1 (1963):16-24.

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