Abstract

We extend the charming identity [10]

$$g_{n+k}^3 - (-1)^k l_k g_n^3 + (-1)^k g_{n-k}^3 = \begin{cases} f_k f_{2k} f_{3n}, & \text{if } g_r = f_r; \\ (x^2 + 4) f_k f_{2k} l_{3n}, & \text{if } g_r = l_r; \end{cases}$$

to Jacobsthal, Vieta, and Chebyshev polynomial families. We then deduce the corresponding Jacobsthal and Jacobsthal-Lucas numeric identities.