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A correction on the paper "A Note on Bi-Periodic Leonardo Sequence"

P. M. M. Catarino and E. V. P. Spreafico

The generating function in Theorem 3 of our work [1] was computed incorrectly. Below we provide the new version of Theorem 3 including the corrections to be made in its proof. The authors are grateful to Carlos M. Da Fonseca [2] for identifying this error.

The corrected version of Theorem 3 in [1] is as follows.

Theorem 3 *The generating function for bi-periodic Leonardo numbers is given by*

$$\sum_{n=0}^{\infty} GLe_n x^n = \frac{(2a-1)+2a(b-1)x+(2-a(b+2))x^2+2ax^3-x^4}{(1-x)(1-(ab+2)x^2+x^4)}. \quad (20)$$

The expression on line 4 page 9 in [1] should be read as

$$(1-(ab+2)x^2+x^4)g(x) = (2ab-1)x+(ab+1)x^3+ab\sum_{m=2}^{\infty} x^{2m+1}.$$

Then for

$$F(x) = \sum_{n=0}^{\infty} GLe_n x^n = h(x)+g(x),$$

we obtain

$$(1-(ab+2)x^2+x^4)F(x) =$$

$$= (2a-1)+(2ab-1)x+(-2a+ab+1)x^2+(ab+1)x^3+ab\sum_{n=4}^{\infty} x^n =$$

$$= (2a-1)+(2ab-1)x+(-2a+ab+1)x^2+(ab+1)x^3+$$

$$+ab\left(\frac{1}{1-x}-1-x-x^2-x^3\right)$$

$$= \frac{(2a-1)+2a(b-1)x+(2-a(b+2))x^2+2ax^3-x^4}{1-x}.$$

References

[1] P.M.M. Catarino and E.V.P. Spreafico, A note on bi-periodic Leonardo sequence. Armen. J. Math., 16 (2024), no. 5, pp. 1–17. https://doi.org/10.52737/18291163-2024.16.5-1-17

[2] C.M. da Fonseca, The generating function of a bi-periodic Leonardo sequence. Armen. J. Math., 16 (2024), no. 7, pp. 1–8. https://doi.org/10.52737/18291163-2024.16.7-1-8

Paula Maria Machado Catarino
Department of Mathematics,
University of Trás-os-Montes e Alto Douro
5001-801, Vila Real, Portugal.
pcatarin@utad.pt

Elen Viviani Pereira Spreafico
Institute of Mathematics,
Federal University of Mato Grosso do Sul
79070-90, Campo Grande, Brazil.
elen.spreafico@ufms.br

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