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ON COMPLEX SEQUENCE OF VIETORIS' NUMBERS AND THEIR FINITE SUMS

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ABSTRACT

Special integers sequences and their properties have been the center of attention for many authors in number theory. Their polynomial sequences, hybrid extensions, hypercomplex applications, partial sums and congruences, quaternionic sequences and etc. are the focus of many studies. In this study, motivated by a rational sequence known as Vietoris' numbers, we investigate the complex sequence of Vietoris' numbers and their properties. Some recurrence-like relations and norm identities of this sequence are established. Moreover, we deduced some finite summations involving the terms of complex Vietoris' numbers.

Keywords Central binomial coefficients · Complex numbers · Vietoris' sequence · Finite sums

References

[1] Catarino P., and Almeida R., On a Quaternionic Sequence with Vietoris' Numbers, Filomat, 35(4): 1065-1086, 2021.

[2] Catarino, P., Almeida, R., A note on vietoris' number sequence, Mediterr. J. Math., 19(1): 41, 2022.

[3] Cação, I., Falcão, M.I., and Malonek, H., Hypercomplex polynomials, vietoris' rational numbers and a related integer numbers sequence, Complex Anal. Oper. Theory., 11(5): 1059–1076, 2017.

[4] Halıcı S., and Gür Z.B., A Note on Weighted Sums of Vietoris' Sequence, Math. Montisnigri, 61: 44-57, 2024.

[5] Vietoris L., Über das Vorzeichen gewisser trigonometrischer Summen. III, Österreich. Akad. Wiss. Math.-Natur. Kl. Sitzungsber. II, 203: 57-61, 1994.

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