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K-Generalized Padovan Numbers which are Concatenation of Two Repdigits

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Authors:

Sémou DIOUF¹
Pagdame TIEBEKABE²
Salifou NIKIEMA³

¹ Cheikh Anta Diop University,
Dakar, Senegal

² University of Kara, Kara,
Togo

³ University Ledea Bernard
Ouedrago, Ouguiya, Burkina
Faso

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Abstract

Let $k \geq 3$ be an integer and let $(P_n^{(k)})_{n \geq 0}$ denote the k-generalized Padovan sequence defined by the recurrence relation

$$P_n^{(k)} = P_{n-1}^{(k)} + P_{n-k}^{(k)}, \quad n \geq k$$

with initial values

$$P_0^{(k)} = \dots = P_{n-2}^{(k)} = 0 \text{ and } P_{n-1}^{(k)} = 1.$$

In this paper, we investigate the Diophantine equation

$$P_n^{(k)} = \underbrace{dd \dots d}_{m \text{ times}} \underbrace{ee \dots e}_{l \text{ times}}$$

where $d, e \in \{1, \dots, 9\}$ with $d \neq e$, and $m, l \geq 1$. Using lower bounds for linear forms in logarithms of algebraic numbers, together with a reduction procedure based on continued fractions, we prove that the above equation admits only finitely many solutions. Moreover, we show that all solutions satisfy an explicit bound $n \leq 500$. A complete computational search within this finite range yields all the solutions, which are explicitly determined.

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References

- [1] A. Baker and H. Davenport, Quart. J. Math. Oxford Seq. 20, 1969, 129-137.
- [2] J. J. Bravo, C. A. G mez and J. L. Herrera, Commun; Korean. Math. Soc, 37, 2022, 977-988.
- [3] A. Dujella and, A. Peth, in Quarterly Journal of Mathematici, 49, 1998, 291-306.
- [4] E. Matveev, Izv. Mat. 64, 2000, 1217-1269.
- [5] H. S. Tahar and S. K. Dash, JP Journal of Algebra, Numbers theory and Applications, 64, 2025, 395-416.