# PERIODIC SOLUTIONS OF SOME HIGHER ORDER DIFFERENCE EQUATIONS

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| **ABSTRACT**  In this work, we deal with the general form of the solutions and the periodicity of some higher order difference equations  where the initial values are nonnegative real numbers such that the denominator is always nonzero. Moreover,some numerical examples are presented to verify our theoretical results.  **References:**  [1] Elaydi, S. (1996). *An Introduction to Difference Equations*, Springer-Verlag, New York, Inc.  [2] El-Metwally H., & Elsayed, E. M. (2012). Qualitative Study of Solutions of Some Difference Equations, *Abstract and Applied Analysis*, Article ID 248291, 16 pages.  [3] Elsayed, E. M. (2016). Expression and behavior of the solutions of some rational recursive sequences, *Mathematical Methods in the Applied Sciences*, 39(18) 5682-5694.  [4] Elsayed, E. M. (2011). On the solution of some difference equations, *European Journal of Pure and Applied Mathematics*, 4(3) 287-303.  [5] Elsayed, E. M., & Ibrahim, T.F. (2015). Solutions and periodicity of a rational recursive sequences of order five, *Bulletin of the Malaysian Mathematical Sciences*, 38 95–112.  [6] Göcen, M., & Cebeci, A. (2018). On the periodic solutions of some systems of higher order difference equations, *Rocky Mountain J. Math*., 48(3) 845-858.  [7] Göcen, M., & Güneysu, M. (2018). The global attractivity of some rational difference equations, *Journal of Computational Analysis and Applications*, 25(7) 1233-1243.  [8] Ibrahim, T.F. (2009). On the Third Order Rational Difference Equation . *Int. J. Contemp. Math. Sciences*, 4(27) 1321-1334.  [9] Ibrahim, T.F. (2009). Dynamics of a rational recursive sequence of order two. *International Journal of Mathematics and Computation*, 5(9) 98-105.  [10] Göcen, M., & Cebeci, A. (2022). Form of the periodic solutions of some systems of higher order di¤erence equations. *Asian-European Journal of Mathematics*, 15(2), Doi: 10.1142/S1793557122500292.  [11] Folly-Gbetoula , M., Göcen, M., & Güneysu, M. (2022). General form of the solutions of some difference equations via Lie symmetry analysis. *Journal of Analysis and Applications*, 20(2), 105-122. |

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