

6–10 July, 2026, Santiago de Compostela, Spain.

Existence of solutions of discrete fractional problem

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Abstract

In this work, we introduce a two-point nonlinear boundary value problem for a finite fractional difference equation. Motivated by the works of [1] and [2], we improve the results of this papers by generalizing the order of derivation and some existence results. In this work, the Green's function is constructed as a series of functions and some of its properties are obtained. Some existence results are deduced from fixed point theory and lower and upper solutions.

References

- [1] Dimitrov, N. D. Existence of solutions for a class of fractional difference equations with multipoint summation boundary conditions., *AIP Conference Proceedings*. **4** (2022)
- [2] Bourguiba, R., Cabada, A., Wannassi, O. K., *Existence of solutions of discrete fractional problem coupled to mixed fractional boundary conditions*, *Ricerche di Matematica*, **73**(2), 523–544.

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