Summary: In this paper we analyse in the framework of constructive mathematics (BISH) the validity of Farkas’ lemma and related propositions, namely the Fredholm alternative for solvability of systems of linear equations, optimality criteria in linear programming, Stiemke’s lemma and the Superhedging Duality from mathematical finance, and von Neumann’s minimax theorem with application to constructive game theory.

MSC:
03B30 Foundations of classical theories (including reverse mathematics)
03F60 Constructive and recursive analysis
03B20 Subsystems of classical logic (including intuitionistic logic)
46N10 Applications of functional analysis in optimization, convex analysis, mathematical programming, economics

Keywords:
Farkas’ lemma; constructive mathematics; Fredholm alternative; Stiemke’s lemma; superhedging duality; constructive game theory

Full Text: DOI

References:

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