

SIMPLEX METHOD FOR SOLVING BI-LEVEL LINEAR FRACTIONAL INTEGER PROGRAMMING PROBLEMS WITH FUZZY NUMBERS

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Abstract

Bi-level programming involves two optimization problems, which is hierarchical, strongly NP-hard problem, and very challenging for most existing optimization approaches. This paper suggests a new solution method to solve bi-level linear fractional integer programming problem, where all coefficients and parameters of the objective functions of the two levels are trapezoidal fuzzy numbers. Under the rules of simplex technique of linear fractional integer programming problems and the operations on trapezoidal fuzzy numbers the optimal integer solution is obtained. An illustrative example is included to demonstrate the effectiveness of the proposed algorithm.

Key Words : *Fuzzy numbers, Fractional programming, Bi-level programming, Integer programming.*