

INTUITIONISTIC FUZZY CONGRUENCES ON PRODUCT LATTICES

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(Received: Oct. 11, 2021 Accepted: Nov. 23, 2021 Published: Dec. 30, 2021)

Abstract: In this work, the concept of intuitionistic fuzzy congruences on lattice X was introduced and was defined direct product between them. Also some characterizations of them were established. Finally, isomorphism between factor lattices of similarity classes was investigated.

Keywords and Phrases: Fuzzy set theory, intuitionistic fuzzy set, lattices and related structures, congruence relations, direct product, isomorphisms.

2020 Mathematics Subject Classification: 03E72, 03G10, 08A30, 20K25, 05C60.

1. Introduction

Zadeh [36] introduced the concepts of a fuzzy set. Intuitionistic fuzzy set (in short IFS) introduced by Atanassov [1]. Intuitionistic fuzzy sets have been found to be very useful in diversely applied areas of science and technology. A lattice is an abstract structure studied in the mathematical subdisciplines of order theory and abstract algebra. It consists of a partially ordered set in which every two elements have a unique supremum (also called a least upper bound or join) and a unique infimum (also called a greatest lower bound or meet). An example is given by the natural numbers, partially ordered by divisibility, for which the unique supremum is the least common multiple and the unique infimum is the greatest common divisor. In the history of fuzzy mathematics, fuzzy relations were early considered to be useful in various applications, and have therefore been extensively investigated. For