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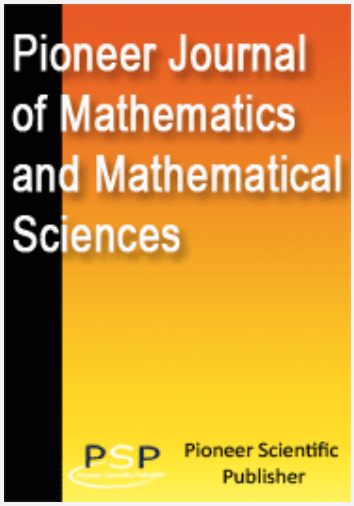

FUZZY SUBGROUPS OF THE DIHEDRAL GROUP D_{p^n}

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Abstract

This paper is a sequel to our paper titled "Distinct fuzzy subgroups of some dihedral groups" [O. Ndiweni and B. B. Makamba, Advances in Fuzzy Sets and Systems (to be published)]. Here we classify fuzzy subgroups of the dihedral group D_{p^n} for p any prime positive integer, and n any positive integer. We focus mainly on the number of equivalence classes and isomorphic classes of fuzzy subgroups under the natural equivalence relation and the isomorphism used in [O. Ndiweni and B. B. Makamba, Distinct fuzzy subgroups of some dihedral groups, Advances in Fuzzy Sets and Systems (to be published)], presenting useful formulae. As in [O. Ndiweni and B. B. Makamba, Distinct fuzzy subgroups of some dihedral groups, Advances in Fuzzy Sets and Systems (to be published)], we include formulae for the number of maximal chains of subgroups of D_{p^n}. Illustrative examples are also presented.

Keywords and phrases: dihedral group, equivalence, fuzzy subgroup, maximal chain, keychain, distinguishing factor, isomorphism.