

Generalized Version of Fuzzy δ -preclosed Set

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Abstract:

This paper deals with generalized versions of fuzzy δ -set preclosed set, viz., $fg\delta_p$ -closed [5] and $f\delta_p g$ -closed sets. Then the mutual relationships between these two sets and with other generalized versions of fuzzy closed sets are established. Afterwards, we discuss about $fg\delta_p$ -closed and $f\delta_p g$ -closed functions. Fuzzy δ_p -normality is introduced in [5]. Here we introduced and study fuzzy $\delta_p g$ -normality and establish that fuzzy δ_p -normality remains invariant under $fg\delta_p$ -closed function. We also introduce $fg\delta_p$ (resp., $f\delta_p g$)-closure operator and establish some properties of these two operators. Then we introduce and study $fg\delta_p$ (resp., $f\delta_p g$)-continuous functions and establish mutual relationships of these two functions with other generalized versions of fuzzy continuous like functions. In Section 6, we introduce and characterize $fg\delta_p$ (resp., $f\delta_p g$)-regular and $fg\delta_p$ (resp., $f\delta_p g$)-normal spaces. It is shown $fg\delta_p$ (resp., $f\delta_p g$)-normal space remains invariant under $fg\delta_p$ (resp., $f\delta_p g$)-irresolute function. In the last section we first introduce $fg\delta_p$ (resp., $f\delta_p g$)- T_2 -space. Then some different types of fuzzy continuous-like functions are introduced and show that the inverse image of $fg\delta_p$ (resp., $f\delta_p g$)- T_2 space under these functions are fuzzy T_2 -space.

Keywords:

$fg\delta_p$ (resp., $f\delta_p g$)-closed set, $fg\delta_p$ (resp., $f\delta_p g$)-closed function, $fg\delta_p$ (resp., $f\delta_p g$)-continuous function, $fg\delta_p$ (resp., $f\delta_p g$)-regular space, fuzzy δ_p -normal space, $fg\delta_p$ (resp., $f\delta_p g$)-normal space, fuzzy strongly $fg\delta_p$ (resp., $f\delta_p g$)-continuous function.

1. Introduction and preliminaries

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