A FIXED POINT THEOREM FOR FUZZY MAPPINGS IN METRIK SPACES

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Abstract

In 1922, the Polish mathematician, Banach, proved a theorem which ensures, under appropriate conditions, the existence and uniqueness of a fixed point. His result is called Banach's fixed point theorem or the Banach contraction principle. This theorem is also applied to show the existence and uniqueness of the solutions of differential equations, integral equations and many other applied mathematics. Many authors have extended, generalized and improved Banach's fixed point theorem in different ways. The concept of a fuzzy set was introduced by Zadeh [1] in 1965. This concept was used in topology and analysis by many authors. The idea of an intuitionist fuzzy set is due to Atanassov and C¸ oker has defined the concept of fuzzy topological spaces induced by Chang . Since then, Heilpern [2] introduced the concept of fuzzy mapping and proved a fixed point theorem for fuzzy contraction mappings in a metric linear space, which is a fuzzy extension of the Banach contraction principle.. His result is a generalization of the fixed point theorem for point-to-set maps of Nadler Abbas and Turkoglu [14] also proved some useful fixed point results for fuzzy mappings, which is a fuzzy extension of some existing results .In this paper, we prove some new fixed point theorems for fuzzy mappings under a *G*-distance and G^* -distance function in complete metric spaces. Our results extend, generalize, and improve some existing results. In last 50 years, this theory has wide range of applications in diverse areas

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