

Dhage, B. C.

Generalised metric spaces and mappings with fixed point. (English) Zbl 0782.54037
Bull. Calcutta Math. Soc. 84, No. 4, 329-336 (1992).

A generalized metric on a set X is a mapping $D : X \times X \times X \rightarrow \mathbb{R}$, satisfying three axioms which are quite analogous to the axioms of a usual metric. (The author also notes that his definition of a generalized metric is alike *S. Gähler's* concept of a 2-metric [see *S. Gähler*, Math. Nachr. 26, 115-148 (1963; Zbl 0117.160)]. The principal interest of the author is the existence problem of a fixed point for a mapping of generalized metric spaces. Some theorems, quite analogous to the classic ones, are obtained in this direction. In particular, it is proved, that if a self-map T of a complete bounded generalized metric space (X, D) satisfies the condition $D(Tx, Ty, Tz) \leq q \cdot D(x, y, z)$ for all $x, y, z \in X$ and some $q \in (0, 1)$, then T has a unique fixed point.

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MSC:

[54H25](#) Fixed-point and coincidence theorems (topological aspects)
[47H10](#) Fixed-point theorems

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Keywords:

generalized metric; 2-metric