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Balwant Singh Thakur* (balwantst@gmail.com), School of Studies in Mathematics, Pt. Ravishankar Shukla University, Raipur, Raipur, Chhattisga 492010, India. *On the convergence of some iterative algorithm to approximate fixed points of nonexpansive mappings.*

In recent year's iterative algorithms, involving perturbed mapping has been studied by various authors to study weak and strong convergence of nonexpansive mappings. In this paper, we will continue this direction of research and propose a new three-step iteration scheme for approximation of fixed point of a nonexpansive self-mapping in the framework of Banach space. We establish some strong convergence theorems. Further, we show that the new iteration process is faster than a number of existing iteration processes. To support the claim, we consider a numerical example and approximated the fixed point numerically by computer using Matlab.

There is a huge body of literature related to iterative approximation of fixed points of nonexpansive mappings, but there are very few with concrete examples. In this paper, we set an example and apply the proposed algorithm; the behaviour of proposed iteration is explained by graph and tables.

We compare the behaviour of the proposed algorithm with the existing iteration process. It shows that the new algorithm converges faster than the existing iteration also it is very stable and effective. (Received July 11, 2016)