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On some iterative processes in fixed point theory.

Several functional equations do not have exact solutions; therefore the need arises to consider their approximate solutions. One way of doing so is to use iterative processes. Several iterative processes have been and are being considered for approximating fixed points. Despite its power and simplicity, the Picard iteration process fails to work for a very important class of mappings: nonexpansive mappings. Therefore need arises to consider other processes. Mann iteration process introduced in 1954, provides the remedy to the above problem and works for nonexpansive mappings. However, this method fails to work for the so-called pseudo-contractive mappings. Ishikawa process already in use since 1974, works well for Lipschitz and Pseudocontractive mappings. Rate of convergence tells us which process is better than the other. Our talk aims at discussing various types of iterative processes starting from apparently simple but very powerful one-step-one-mapping Picard process. We compare some of the iterative processes for the rate of convergence. (Received August 27, 2016)