

In a nutshell: Fixed-point iteration

Given an equation in the form $x = f(x)$ and an initial guess x_0 as to the solution to this equation.

Parameters:

$\varepsilon_{\text{step}}$ The maximum step size allowed before we consider the method to have converged.
 N The maximum number of iterations.

1. Let $k \leftarrow 0$.
2. If $k > N$, we have iterated N times, so stop and return signalling a failure to converge.
3. Set $x_{k+1} \leftarrow f(x_k)$.
4. If $|x_{k+1} - x_k| < \varepsilon_{\text{step}}$, return x_{k+1} .
5. Increment k and return to Step 2.