

One-Point Iteration Method

The one-point iteration method in its simplest form for a single equation rearranges the function

$$f(x) = 0 \quad (1)$$

with unknown roots in such a way that

$$x = g(x). \quad (2)$$

The root, the value that solves the Eq. [1], is sought by assuming a starting value of x to be used in $g(x)$ and computing a successive value for x such that

$$x_{N+1} = f(x_N).$$

This iterative procedure continues until convergence is reached, which is achieved if $|g'(x)| < 1$. A graphical view of this procedure is shown in Figure 1.

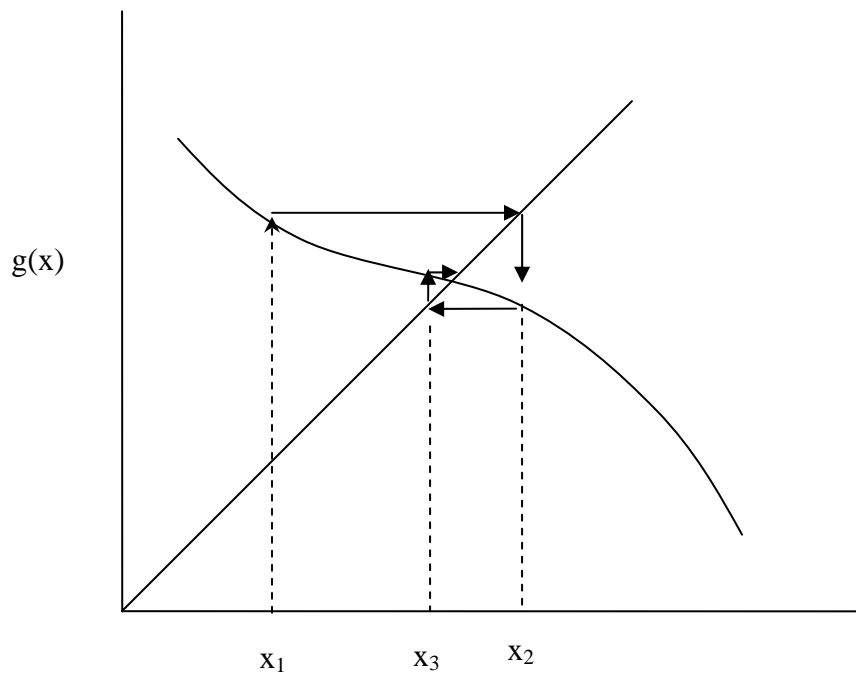


Figure 1. The One-Point Iteration Method