

Halting Conditions:

There are three conditions which may cause the iteration process to halt

1. We halt if both of the following conditions are met

i) The step between successive iterates is sufficiently small $|x_{n+1} - x_n| < \epsilon$

ii) The function evaluated at the point x_{n+1} is sufficiently small $|f(x_{n+1})| < \epsilon$

2. If the system does not have a solution, we halt

3. If we have iterated some maximum number of times, say N , and have not met condition 1, we halt and indicate that a solution was not found.

If we halt due to condition 1, we state that x_{n+1} is our approximation to the root.

If we halt due to either condition 2 or 3, we may either choose a different initial approximations x_0 and x_1 or state that a solution may not exist.