Glossary of symbols

\( R \) is a set of real numbers

\( I \) is an open interval

\( \{x_n\} \) is a sequence

\( p \) is the order of convergence of iterative methods

\( x_0 \) is an initial guess/approximation

\( r \) is a simple root

\( e_n = x_n - r \) is the error at \( n^{th} \) iteration for simple root

\( c_k = 1 \frac{f^{(k)}(r)}{k! f'(r)} \), \( k = 1, 2, 3, \ldots \), is asymptotic error constant in the case of

simple root

\( r_m \) is a multiple root

\( m \) is the multiplicity of the required multiple root \( r_m \)

\( e_n = x_n - r_m \) is the error at \( n^{th} \) iteration for multiple root

\( \hat{c}_k = \frac{m! f^{(k)}(r_m)}{k! f^{(m)}(r_m)} \), \( k = 1, 2, 3, \ldots \), is asymptotic error constant in the case of

multiple root

\( r \) is a simple root of nonlinear system

\( e = x - r \) is the error in \( n^{th} \) vector for nonlinear system

\( |x_{n+1} - x_n| \) difference between two consective iteration

\( |f(x_n)| \) absolute value of the function at point \( x_n \)

I. M. Iterative methods