

EX.1.4.3, Sauer3

Use Theorem 1.11 or 1.12 to estimate the error e_{i+1} in terms of the previous error e_i as Newton's Method converges to the given roots. Is the convergence linear or quadratic?

a. $x^5 - 2x^4 + 2x^2 - x = 0$, $r = -1, r = 0, r = 1$;

b. $2x^4 - 5x^3 + 3x^2 + x - 1 = 0$, $r = -\frac{1}{2}, r = 1$.