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## EX.1.2.30, Sauer3

Assume that Fixed-Point Iteration is applied to a twice continuously differentiable function g(x) and that g'(r) = 0 for a fixed point. Show that if FPI converges to r, the error obeys  $\lim_{i \to \infty} e_{i+1}/(e_i)^2 = M$ , where M = |g''(r)|/2.