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The asymptotic behavior of convergent solutions to difference equations  $x_{n+1} = T(x_n)$  for  $n \geq 0$ , where  $T$  is two times continuously differentiable map on an open subset of  $\mathbb{R}^n$  or  $\mathbb{C}^n$  is considered.

It can be shown from results by C. V. Coffman that if  $\bar{x}$  and  $J$  denote respectively the limit of a convergent solution  $\{x_n\}$  and the jacobian of  $T$  at  $\bar{x}$ , then there exist  $y \in \mathbb{R}^n$  or  $\mathbb{C}^n$  and a positive number  $\rho$  such that  $\rho$  is equal to the modulus of one the characteristic roots of  $J$ ,  $\|x_n\|^{1/n} = \rho + o(\rho^n)$ , and  $x_n = \bar{x} + J^n y + E_n$ , where  $E_n = o(n^k \rho^n)$ .

We give sharp asymptotic estimates for  $E_n$  in the case when  $J$  is diagonalizable. (Received September 24, 2012)