

ON THE PAPER „A NOTE ON THE CONVERGENCE  
 OF STEFFENSEN'S METHOD“

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In our paper [1] we gave sufficient conditions for the existence and approximation of the roots of the nonlinear equation

$$(1) \quad P(x) = x - \Phi(x) = 0,$$

where  $P : X \rightarrow X$  is a continuous mapping, and  $X$  a real linear Banach space.

For technical reasons the results of the given application has been omitted. We give here the approximative values of the roots of equation  $x^3 - 2x - 5 = 0$ , which satisfies the conditions of Theorem [2] for  $x_0 = 2.1$ :

$n$	$x_n$	$P(x_n)$
0	2.10000000000000	0.06100000000000
1	2.09437758014921	0.00194079954675
2	2.09455130866924	0.00000192951205
3	2.09455148154216	0.00000000000191
4	2.09455148154233	0.00000000000000

The approximative value of the root given in [2] is 2.094551481542326591

For  $x_0 = 2$ , we have  $P(x_0) = 1$ ,  $u_0 = \Phi(x_0) = 3$ ,

$$P(u_0) = 16, \Gamma_0 = B_0 = \frac{1}{15}, r = \frac{17}{15}, K = \frac{47}{5} \text{ and } h_0 = \frac{1034}{1125}.$$

The condition 4° of Theorem is not satisfied and thus the method can not be applied.

REFERENCES

- [1] Balázs, M., *A note on the convergence of Steffensen's method*. *Mathematica - Revue d'Analyse Numérique et de Théorie de l'Approximation*, 10, 1 (1981).
- [2] Werner, W., *Über ein Verfahren der Ordnung  $1 + \sqrt{2}$  zur Nullstellenbestimmung*, *Numerische Mathematik*, Vol. 32, 3, 333-342 (1979).

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