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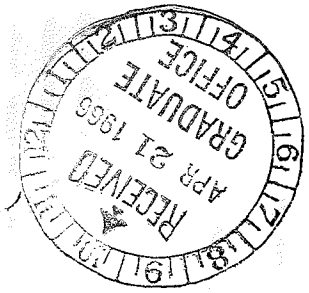
## ABSTRACT

The abstract should be in the form of a brief and concise statement of the main results or points of view of the paper, without demonstrations and with a minimum of formulae. It should not exceed 100 words and should be compressed if possible into a single paragraph. It should be written in the third person. The abstract should be typewritten and in a form suitable for immediate publication in the MONTHLY.

Most extensions of the Weierstrass Approximation Theorem apply only to bounded functions (See: M. H. Stone, "A Generalized Weierstrass Approximation Theorem", Studies in Mathematics, vol. 1, Math. Assoc. of Amer. 1962). It is shown here that any real continuous function on the real line R can be uniformly approximated on R by infinitely differentiable functions. It follows that if the set $C^{\infty}(R)$ of all real infinitely differentiable functions on R is considered as an "extended ($0 \leq$ distance $\leq \infty$) metric space" with the metric $d(f,g) = \sup |f-g|$ then the completion of $C^{\infty}(R)$ via Cauchy sequences may be identified with the space C(R) of all real continuous functions on R.

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**ABSTRACT OF PAPER**

Title of Paper: Approximation of Real Continuous Functions on the Real Line by Infinitely Differentiable Functions.

Time 10 minutes.

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