WEIERSTRASS’ THEOREM IN WEIGHTED SOBOLEV SPACES WITH C \( ^3 \) DERIVATIVES: ANNOUNCEMENT OF RESULTS

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Abstract. We characterize the set of functions which can be approximated by smooth functions and by polynomials with the norm

\[
\|f\|_{W^{s,m}(w)} := \sum_{j=0}^{k} \| f^{(j)} \|_{L^m(w_j)},
\]

for a wide range of (even non-bounded) weights \( w_j \)’s. We allow a great deal of independence among the weights \( w_j \)’s.

Key words. Weierstrass’ theorem, weight, Sobolev spaces, weighted Sobolev spaces

AMS subject classifications. 41A10, 46E35, 46G10