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Approximation by Lipschitz, analytic functions on certain Banach spaces

In 1934, H. Whitney showed that continuous, real-valued functions defined on open sets can be uniformly approximated by analytic maps. Subsequently (1953), Kurzweil demonstrated that in a separable Banach space admitting a separating polynomial, any continuous function can be uniformly approximated by maps analytic on the space. In the spirit of Kurzweil, we show that in such spaces any uniformly continuous, real-valued function can be uniformly approximated by Lipschitz analytic maps on bounded sets.