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A characterization of extremal elements in some linear problems. (English) Zbl 1448.41029

Summary: We give a characterization of elements of a subspace of a complex Banach space with the property that the norm of a bounded linear functional on the subspace is attained at those elements. In particular, we discuss properties of polynomials that are extremal in sharp point-wise Nikol’skii inequalities for algebraic polynomials in a weighted $L_q$-space on a finite or infinite interval.

MSC:

41A65 Abstract approximation theory (approximation in normed linear spaces and other abstract spaces)
30E10 Approximation in the complex plane
41A17 Inequalities in approximation (Bernstein, Jackson, Nikol’skii-type inequalities)
41A50 Best approximation, Chebyshev systems

Keywords:
complex Banach space; bounded linear functional on subspace; algebraic polynomial; point-wise Nikol’skii inequality

Full Text: DOI MNR

References:


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