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On exact constants of best polynomial approximation on the (m-1)-dimensional sphere.
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Certain aspects of the problem of finding the constants of a best approximation by algebraic polynomials on an (m-1)-dimensional sphere $S^{m-1}$ are investigated. The exact upper bound for best polynomial approximations in some classes of convolutions in $L_1(S^{m-1})$ is found, and it is proved that the m-dimensional analog of the Favard- Akhiezer-Krein theorem does not hold when $m > q$. A necessary and sufficient condition for coincidence of the least upper bounds of the best polynomial approximations in classes of convolutions in $L_1(S^q)$, $L_{\infty}(S^q)$ is given for $m = 2$.

MSC:
41A50 Best approximation, Chebyshev systems
41A10 Approximation by polynomials

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best approximation by algebraic polynomials; exact upper bound; convolutions