

1. In the paper [1] the exact (in the sense of the order of smallness) estimates of the best joint polynomial approximations of functions in many real variables (FMRV) with convex (up or down) on not empty intersection of each straight line with given bounded convex domain derivatives of the certain order of Lipschitz class in uniform and integral metrics are proved.

2. The report is devoted to some generalizations of the results of paper [1], related with joint polynomial approximations in uniform and integral metrics on the given bounded convex domain of the FMRV with convex (up or down) derivatives of the certain order either from the seminormed Sobolev space with derivatives of the certain order of the bounded variation or of the absolutely continuous on not empty intersection of each straight line with that domain. Besides, in the report the multidimensional analogs of the classical direct and converse Jackson and Bernshtein-Valee-Poussin theorems (a version stronger than those obtained by S.M. Nikolskii in [2]) and the essential generalizations of these theorems to polynomial approximations of FMRV from Nikolskii and Besov spaces on the bounded domains with Lipschitzian boundary are also included [3].

References

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2. S.M. Nikolskii, Some Problems of Approximation of Functions of Several Variables // in: Constructive Theory of Functions, Proc. Inter. Conf. (Varna, 1970), Publ.-house of Bulg. Acad. Sci., Sofia (1972), pp. 81-83.

3. A. Khatamov, Multidimensional Analogs of Direct and Converse Jackson and Bernshtein Theorems and Their Generalizations, Mathematical Notes [Translated from Matematicheskije Zametki], **67**, No. 4, 516-522 (2000).