

POLYNOMIAL APPROXIMATION BY THE METHOD OF LEAST SQUARES

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1. *Introduction.* In an earlier article in the *Annals of Mathematics* the author in collaboration with V. V. Latshaw published formulas and tables for the fitting of polynomials to data by the method of least squares.¹ In that paper two ranges of the independent variable were considered, one from $x=1$ to $x=\rho$, and the other from $x=-\rho$ to $x=\rho$. For the first range formulas were given for fitting polynomials of first, second and third degrees to data and these formulas were reduced to tables. For the second range formulas were given for polynomials from the first to the seventh degrees, but these formulas were not then reduced to tables.

It is the purpose of the present paper to supply the tables for the second range and hence to furnish a means of reducing to a minimum the numerical labor involved in fitting to data polynomials from the first to the seventh degree inclusive. Incidentally some novel mathematical aspects of the problem of polynomial approximation have been brought to light, particularly as it applies to the existence of a set of polynomials which are orthogonal for a summation over discrete intervals.

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