

LINEAR ALGEBRA AND THE SUMS OF POWERS OF INTEGERS*

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Abstract. A general framework based on linear algebra is presented to obtain old and new polynomial expressions for the sums of powers of integers. This framework uses changes of polynomial basis, infinite lower triangular matrices and finite differences.

Key words. Finite differences, Polynomial space, Polynomial basis, Change of basis, Sum of powers of integers, Infinite lower triangular matrix.

AMS subject classifications. 11B83, 11B37, 15A03, 15A09.

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