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AN EXPLICIT REPRESENTATION AS QUASI–SUM OF SQUARES OF A POLYNOMIAL GENERATED BY THE AG INEQUALITY

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Abstract. An explicit representation of the difference $(x_1+\cdots+x_n)^n - n^n x_1\cdots x_n$ for all natural $n \geqslant 2$ is given as a sum of $p_{ij}(x_i - x_j)^2$ over all $1 \leqslant i < j \leqslant n$ where $p_{ij} = p_{ij}(x_1,\ldots,x_n)$ are homogeneous polynomials of degree $n-2$ whose coefficients at all possible monomials of degree $n-2$ are positive.

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