POLYNOMIAL IDENTITY INVOLVING BINOMIAL THEOREM AND FAULHABER'S FORMULA

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Abstract. Given the polynomial identity

$$n^{2m+1} = \sum_{r=0}^{m} \mathbf{A}_{m,r} \sum_{k=1}^{n} k^r (n-k)^r$$

we derive and prove the coefficients $\mathbf{A}_{m,r}$ using Binomial theorem and Faulhaber's formula so that odd-power identity holds.

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