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*Symmetry of the Power Sum Polynomials.*

Sums of powers of integers have been studied extensively for many centuries. The Pythagoreans, Archimedes, Fermat, Pascal, Bernoulli, Faulhaber, and other mathematicians have discovered formulas for sums of powers of the first  $n$  natural numbers. Among these is Faulhaber's well-known formula which expresses the power sums as polynomials whose coefficients involve Bernoulli numbers.

In this talk, we give an elementary proof that for each natural number  $p$ , the sum of  $p$ th powers of the first  $n$  natural numbers can be expressed as a polynomial in  $n$  of degree  $p+1$ . We also prove a novel identity involving Bernoulli numbers and use it to show symmetry of these polynomials. In addition, we make a few conjectures regarding the roots of these polynomials, and speculate on the asymptotic behavior of their graphs. (Received September 21, 2017)