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Bernd C. Kellner and **Jonathan Sondow***, jsondow@alumni.princeton.edu. *Power-sum denominators*.

The *power sum* $1^n + 2^n + \cdots + x^n$ has been of interest to mathematicians since classical times. Johann Faulhaber, Jacob Bernoulli, and others who followed expressed power sums as polynomials in x of degree $n + 1$ with rational coefficients. Here we consider the denominators of these polynomials, and prove some of their properties. A remarkable one is that such a denominator equals $n + 1$ times the squarefree product of certain primes p obeying the condition that the sum of the base- p digits of $n + 1$ is at least p . As an application, we derive a squarefree product formula for the denominators of the Bernoulli polynomials.

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