1067-11-1014 **David Petrie Moulton***, IDA–Center for Communications Research, 805 Bunn Dr, Princeton, NJ 08540. *Finding small sets whose subset sums include a given set.* Preliminary report.

At the 1997 West Coast Number Theory Conference at Asilomar, Gerry Myerson asked whether one could find n numbers whose subset sums include the $n+1$ powers of 2 up to 2^n. After Peter Montgomery found the set $\{1, -5, 7, 9\}$, representing $\{1, 2, 4, 8, 16\}$, I became interested in generalizations of the problem. I began searching for the smallest sets whose subset sums include some target set, like the first n powers of r or the first n factorials, and I proved some asymptotic results. Recently, after speeding up my computational code, I found a number of surprising representing sets that conflicted with my previous intuition. I will discuss basic results, some code optimizations, and a few interesting examples. (Received September 17, 2010)