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**David Petrie Moulton\*** (dpmoulton@gmail.com). *An entropy-derived lower bound for the size of a set whose subset sums include the first  $n$  powers of 2.*

The *subset-sum rank* of a set  $S$  of numbers is the smallest size of a set  $B$  such that each element of  $S$  is the sum of some subset of  $B$ . The subset-sum rank of  $\{1, 2, 4, 8, 16\}$ , the set of the first 5 powers of 2, is 4, since each element is a sum of a subset of the 4-set  $\{1, -5, 7, 9\}$ .

I use results on entropies of discrete random variables to improve the known lower bound on the subset-sum rank of the set of the first  $n$  powers of 2 to

$$\frac{2n}{\log_2(\pi en/2)}.$$

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