1154-11-2639 **Nathan G McNew*** (nmcnew@towson.edu), Department of Mathematics, 8000 York Road, Towson, MD 21286. *Counting primitive subsets and other statistics of the divisor graph of* $\{1, 2, \ldots n\}$.

A set of integers is primitive if no element of the set divides another. Let $Q(n)$ denote the count of the primitive subsets of the integers $\{1, 2 \ldots n\}$. Erdős and Cameron conjectured in 1990 that $Q(n) = c^{n+o(n)}$ for some constant c. This conjecture was proven in 2018 by Angelo, however his proof was not effective in that it gave no information as to the value of the constant c. We give a new proof of the fact that $Q(n) = c^{n+o(n)}$ which provides an algorithm to compute the value of this constant c to arbitrary precision, and also gives a much stronger error term than $o(n)$ in the exponent. The method developed can be applied to various related problems which can be stated in terms of the divisor graph. In particular it dramatically improves the error term in the estimates of Mazet and Chadozeau for the path cover number of the divisor graph of the integers from 1 to n. (Received September 17, 2019)