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On the sum-of-divisors function,
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Abstract

For each integer $n > 0$, $\sigma(n)$ denotes the sum of all positive divisors of n; $b(n)$ denotes the exponent (≥ 0) of the largest power of 2 dividing n, and then $0d(n) := n2^{-b(n)}$. For each integer $n \geq 0$, $q(n)$ denotes the number of partitions of n into distinct parts; and $q_0(n)$ denotes the number of partitions of n into distinct odd parts. Conventionally, $q(0) = q_0(0) := 1$. It is here demonstrated that the composite function $\sigma \circ 0d$ can be expressed additively in terms of the in terms of the functions q, q_0.