

Abstract: A Niven number is an integer that is divisible by the sum of its base q digits. For example, 2008 is Niven both in base 3 and in base 5 (see below).

$$\begin{array}{rcl} 2008 & = & 31013_5 \\ 2008 & = & 2202101_3 \end{array} \qquad \begin{array}{rcl} 2008/(3+1+0+1+3) & = & 251 \\ 2008/(2+2+0+2+1+0+1) & = & 251 \end{array}$$

Several people have derived asymptotic formulae for the function $N(x)$ that counts the number of Niven numbers less than x . We proceed in a more general case, studying functions that act only on the base q digits of an integer. An asymptotic formula for the counting function of these generalized Niven numbers is known, but the question of divisibility by multiple functions is still open. We present partial work toward acquiring an asymptotic formula in this case, as well as conjectures based off of numerical evidence.