S Neil [SI3] check! 2966 – 2967 " N1203.5 – N2030.5 ~~2960~~

THE NUMBER OF REPRESENTATIONS OF ONE AS A SUM OF UNIT FRACTIONS

David Singmaster

Polytechnic of the South Bank, London, SE 1*

Let N(k) be the number of solutions of

$$1 = \Sigma_{i=1}^{k} 1/n_i \ , \ n_i \text{ positive integers.}$$

Let M(k) be the number of solutions with order disregarded (or with $n_1 \geq n_2 \geq \cdots \geq n_k$). Using a computer, I have obtained the following values.

k	1	2	3	4	5	6
M(k)	1	1	3	14	147	3462
N(k)	1	1	10	215	12231	2025462

$N_{1203.5} = 2966$

$N_{2030.5} = 2967$

Is there a formula for M(k) or N(k)? Is there an asymptotic formula?

* At the Istituto Matematico, Pisa, Italy for the year 1972-3.

k	1	2	3	4	5	6
Distinct D(k)	1	0	1	6	73	2319 ~~2400~~
	1	1	~~3~~	~~9~~ ?		

S. A. Burr ~1963

Carmichael ?

Write to Guy & DS

cf # 621 in book