

Answer on Question #79239 - Math - Calculus

$$\frac{n}{1} + \frac{n}{2} + \cdots + 1 = nH_n,$$

where  $H_n = 1 + \frac{1}{2} + \cdots + \frac{1}{n}$  is the  $n$ -th harmonic number. There is an integral representation given by Euler

$$H_n = \int_0^1 \frac{1-x^n}{1-x} dx$$

Also it is known that

$$\lim(H_n - \ln n) = \gamma,$$

where *gamma* is the Euler-Mascheroni constant.