

# Harmonic series

The *harmonic series* is

$$1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots$$

The sum of the first  $n$  terms of this series lies between  $\ln n$  and  $1 + \ln n$ , but there is no simple formula for the sum.

The infinite harmonic series *diverges*:

$$\sum_{n=1}^{\infty} \frac{1}{n} = \infty.$$