Harmonic series

The *harmonic series* is

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

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*:

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