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Euler's constant

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Euler's constant γ is defined by

$$\gamma = \lim_{n \to \infty} \left(1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \cdots + \frac{1}{n} - \ln n \right)$$

or equivalently

$$\gamma = \lim_{n \to \infty} \sum_{i=1}^{n} \left[\frac{1}{i} - \ln\left(1 + \frac{1}{i} \right) \right]$$

Euler's constant has the value

$$0.5772156649015328606065120900824024310\ldots$$

It is related to the gamma function by

$$\gamma = -\Gamma'(1)$$

It is not known whether γ is rational or irrational.

References.

- Chris Caldwell - "Euler's Constant", `http://primes.utm.edu/glossary/page.php/Gamma.h`