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index of important irrational constants

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The following table lists some of the most important irrational constants in mathematics.

Of course importance is sometimes debatable. Hardly anyone disputes the importance of  $\pi$  or  $e$  (in fact, these are the only two constants in the OEIS to have the keyword “core” attached to them), but for other constants it is not quite clear cut. In general, if a given constant has a name (especially a name hyphenating two famous mathematicians’ last names) I consider it important.

Irrationality is not always clear cut either, e.g., it might be a mistake to exclude the Euler-Mascheroni constant  $\gamma$  from this list.

The constants are given to 20 decimal places.

0.1149420448532962007	Kepler-Bouwkamp constant or polygon-inscribing constant
0.1234567891011121314	Champernowne's constant $C_{10}$
0.2078795763507619085	$i^i$ (has no imaginary part) or $e^{\frac{-\pi}{2}}$
0.2357111317192329313	<a href="http://planetmath.org/CopelandErdsConstant">http://planetmath.org/CopelandErdsConstant</a> Copeland-Erdős
0.2614972128476427837	Meissel-Mertens constant
0.3275822918721811159	Lévy's constant
0.4146825098511116602	The prime constant $\rho$
0.5926327182016361971	Lehmer's constant
0.6079271018540266286	$\frac{6}{\pi^2}$ , the probability that a random integer is squarefree
0.6434105462883380261	Cahen's constant
0.7642236535892206629	Landau-Ramanujan constant
0.8346268416740731862	Gauss's constant
0.8862269254527580136	$\Gamma(\frac{3}{2}) = \frac{1}{2}\sqrt{\pi}$
0.9159655941772190150	Catalan's constant $K$
1.2020569031595942853	Apéry's constant $\zeta(3)$
1.2254167024651776451	$\Gamma(\frac{3}{4})$
1.3063778838630806904	Mills' constant
1.3247179572447460260	The plastic constant
1.4142135623730950488	Square root of two $\sqrt{2}$
1.4513692348833810502	Ramanujan-Soldner constant
1.6066951524152917637	Erdős-Borwein constant
1.6180339887498948482	The golden ratio $\phi$
1.6449340668482264364	$\zeta(2) = \frac{\pi^2}{6}$ , the solution to the Basel problem
1.7320508075688772935	Square root of three $\sqrt{3}$
1.7579327566180045327	Vijayaraghavan's infinite nested radical $\sqrt{1 + \sqrt{2 + \sqrt{3 + \sqrt{4 + \sqrt{5 + \dots}}}}}$
1.7724538509055160273	$\Gamma(\frac{1}{2}) = \sqrt{\pi}$
2.2360679774997896964	Square root of five $\sqrt{5}$
2.6651441426902251887	$2^{\sqrt{2}}$
2.6854520010653064453	Khinchin's constant
2.4142135623730950488	The silver ratio $\delta_S$
2.5849817595792532170	Sierpiński's constant
2.7182818284590452354	The natural log base $e$
3.1415926535897932385	The ratio of a circle's radius to its circumference $\pi$
3.6256099082219083119	$\Gamma(\frac{1}{4})$
4.1327313541224929385	$\sqrt{2e\pi}$
4.6692116609102990671	Feigenbaum's constant $\delta$
7.3890560989306502272	$e^2$
14.1347251417346937904	The imaginary part of the first nontrivial zero of the Riemann zeta
15.1542622414792641898	$e^e$
36.4621596072079117710	$\pi^\pi$

In looking these up in the OEIS, you can simply type them with a decimal point and no commas between the digits. If you get no results, try chopping off a couple of the least significant digits.

## References

- [1] Alan Jeffrey, *Handbook of Mathematical Formulas and Integrals*, 3rd Edition. New York: Elsevier Academic Press (2004): 223, Section 11.1.4  
Special values of  $\Gamma(x)$