

**Fundamental Physical Constants — Universal constants**

Quantity	Symbol	Value	Unit	Relative std. uncert. $u_r$
speed of light in vacuum	$c, c_0$	299 792 458	$\text{m s}^{-1}$	(exact)
magnetic constant	$\mu_0$	$4\pi \times 10^{-7}$ $= 12.566\,370\,614\dots \times 10^{-7}$	$\text{N A}^{-2}$ $\text{N A}^{-2}$	(exact)
electric constant $1/\mu_0 c^2$	$\epsilon_0$	$8.854\,187\,817\dots \times 10^{-12}$	$\text{F m}^{-1}$	(exact)
characteristic impedance of vacuum $\sqrt{\mu_0/\epsilon_0} = \mu_0 c$	$Z_0$	376.730 313 461...	$\Omega$	(exact)
Newtonian constant of gravitation	$G$	$6.673(10) \times 10^{-11}$	$\text{m}^3 \text{kg}^{-1} \text{s}^{-2}$	$1.5 \times 10^{-3}$
	$G/\hbar c$	$6.707(10) \times 10^{-39}$	$(\text{GeV}/c^2)^{-2}$	$1.5 \times 10^{-3}$
Planck constant	$h$	$6.626\,068\,76(52) \times 10^{-34}$	$\text{J s}$	$7.8 \times 10^{-8}$
in eV s		$4.135\,667\,27(16) \times 10^{-15}$	$\text{eV s}$	$3.9 \times 10^{-8}$
$h/2\pi$	$\hbar$	$1.054\,571\,596(82) \times 10^{-34}$	$\text{J s}$	$7.8 \times 10^{-8}$
in eV s		$6.582\,118\,89(26) \times 10^{-16}$	$\text{eV s}$	$3.9 \times 10^{-8}$
Planck mass $(\hbar c/G)^{1/2}$	$m_{\text{P}}$	$2.1767(16) \times 10^{-8}$	$\text{kg}$	$7.5 \times 10^{-4}$
Planck length $\hbar/m_{\text{P}}c = (\hbar G/c^3)^{1/2}$	$l_{\text{P}}$	$1.6160(12) \times 10^{-35}$	$\text{m}$	$7.5 \times 10^{-4}$
Planck time $l_{\text{P}}/c = (\hbar G/c^5)^{1/2}$	$t_{\text{P}}$	$5.3906(40) \times 10^{-44}$	$\text{s}$	$7.5 \times 10^{-4}$