# Fundamental constants

| Constant | Symbol | Value in SI units |
|---|---|---|
| acceleration of free fall | $g$ | $9.806\ 65\ \mathrm{m\ s^{-2}}$ |
| Avogadro constant | $L$, $N_A$ | $6.022\ 141\ 79(30) \times 10^{23}\ \mathrm{mol^{-1}}$ |
| Boltzmann constant | $k = R/N_A$ | $1.380\ 6504(24) \times 10^{-23}\ \mathrm{J\ K^{-1}}$ |
| electric constant | $\varepsilon_0$ | $8.854\ 187\ 817 \times 10^{-12}\ \mathrm{F\ m^{-1}}$ |
| electronic charge | $e$ | $1.602\ 176\ 487(40) \times 10^{-19}\ \mathrm{C}$ |
| electronic rest mass | $m_e$ | $9.109\ 382\ 15(45) \times 10^{-31}\ \mathrm{kg}$ |
| Faraday constant | $F$ | $9.648\ 3399(24) \times 10^{4}\ \mathrm{C\ mol^{-1}}$ |
| gas constant | $R$ | $8.314\ 472(15)\ \mathrm{J\ K^{-1}\ mol^{-1}}$ |
| gravitational constant | $G$ | $6.674\ 28(67) \times 10^{-11}\ \mathrm{m^3\ kg^{-1}\ s^{-2}}$ |
| Loschmidt's constant | $N_L$ | $2.686\ 7774(47) \times 10^{25}\ \mathrm{m^{-3}}$ |
| magnetic constant | $\mu_0$ | $4\pi \times 10^{-7}\ \mathrm{H\ m^{-1}}$ |
| neutron rest mass | $m_n$ | $1.674\ 927\ 211(84) \times 10^{-27}\ \mathrm{kg}$ |
| Planck constant | $h$ | $6.626\ 068\ 96(33) \times 10^{-34}\ \mathrm{J\ s}$ |
| proton rest mass | $m_p$ | $1.672\ 621\ 637(83) \times 10^{-27}\ \mathrm{kg}$ |
| speed of light | $c$ | $2.997\ 924\ 58 \times 10^{8}\ \mathrm{m\ s^{-1}}$ |
| Stefan–Boltzmann constant | $\sigma$ | $5.670\ 400(40) \times 10^{-8}\ \mathrm{W\ m^{-2}\ K^{-4}}$ |

# The solar system

| Planet | Equatorial diameter (km) | Mean distance from sun ($10^6$ km) | Sidereal period | |
|---|---|---|---|---|
| Mercury | 4879.4 | 57.91 | 87.97 | days |
| Venus | 12 104 | 108.21 | 224.7 | days |
| Earth | 12 756.3 | 149.6 | 0.999 | years |
| Mars | 6795 | 227.94 | 686.98 | days |
| Jupiter | 142 985 | 778.54 | 11.86 | years |
| Saturn | 120 536 | 1433.45 | 29.46 | years |
| Uranus | 51 119 | 2876.679 | 84.32 | years |
| Neptune | 49 528 | 4452.94 | 164.79 | years |
| Pluto | 2300 | 5906.376 | 248.02 | years |