Physical constants

a_B	$=$	0.5292 Å	Bohr radius	($a_B = 0.5292 \times 10^{-10}$ m)
ε_0	$=$	8.8542×10^{-12} A s / (V m)	dielectric permittivity in vacuum	
e	$=$	1.6022×10^{-19} C	elementary charge	
c	$=$	2.9979×10^{8} m / s	velocity of light in vacuum	
E_{Ryd}	$=$	13.606 eV	Rydberg energy	
g	$=$	9.8067 m / s^2	Acceleration on earth at sea level due to gravity	
G	$=$	6.6873×10^{-11} m^3 / (kg s^2)	Gravitational constant ($F = G\,M\,m\,/\,r^2$)	
h	$=$	6.6261×10^{-34} J s	Planck constant	($h = 4.1356 \times 10^{-15}$ eV s)
$\hbar$	$=$	1.0546×10^{-34} J s	$\hbar = h\,/\,(\,2\pi\,)$	($\hbar = 6.5821 \times 10^{-16}$ eV s)
k	$=$	1.3807×10^{-23} J / K	Boltzmann constant	($k = 8.6175 \times 10^{-5}$ eV / K)
μ_0	$=$	1.2566×10^{-6} V s / (A m)	magnetic permeability in vacuum	
m_e	$=$	9.1094×10^{-31} kg	free electron mass	
N_{Avo}	$=$	6.0221×10^{23} mol^{-1}	Avogadro number	
$R = k\,N_{Avo}$	$=$	8.3145 J K^{-1} mol^{-1}	ideal gas constant	

Note:

- The *dielectric permittivity* of a material is given by $\varepsilon = \varepsilon_r\,\varepsilon_0$ where ε_r and ε_0 are the *relative* and *absolute* dielectric constant, respectively.
- The *magnetic permeability* of a material is given by $\mu = \mu_r\,\mu_0$ where μ_r and μ_0 are the *relative* and *absolute* magnetic permeability, respectively.

Useful conversions

1 eV $=$ 1.6022×10^{-19} C V $=$ 1.6022×10^{-19} J

kT $=$ 25.86 meV (at $T = 300$ K)

E $=$ $h\,\nu$ $=$ $h\,c\,/\,\lambda$ $=$ 1239.8 eV nm / λ