

# Common Physical and Chemical Constants

<http://www2.ucdsb.on.ca/tiss/stretton/Database/constants.htm>

Avogadro's Number	$6.02217 \times 10^{23}$ things/mole
Planck's Constant	$6.6260755 \times 10^{-34}$ Js
1 atmosphere (atm)	101,325 Pascals (Pa) = 101.325 kPa = 760 mm of Hg = 760 Torr = 1.01325 bar
1 mole of any gas at STP	22.4 L (0°C, 1 atm)
1 mole of any gas at SATP	24.8 L (25°C, 1 atm)
Ideal Gas Law Constant (R)	0.0821 L atm mol <sup>-1</sup> K <sup>-1</sup> = 8.31430 L kPa mol <sup>-1</sup> K <sup>-1</sup> = 8.31441 J mol <sup>-1</sup> K <sup>-1</sup>
1 calorie (cal)	4.184 J
1 Cal	1 kcal = 1000 calories
1 atomic mass unit (amu)	$1.6605665 \times 10^{-24}$ g
1 tonne(t)	1000 kg = 1 Mg
Speed of light in a vacuum	299792458 m s <sup>-1</sup> (3.0 X 10 <sup>8</sup> m s <sup>-1</sup> )
Rest mass of an electron (m <sub>e</sub> )	0.000548712 u = 9.1093897 X 10 <sup>-28</sup> g
Rest mass of a proton (m <sub>p</sub> )	1.00727605 u = 1.67262305 X 10 <sup>-24</sup> g
Rest mass of a neutron (m <sub>n</sub> )	1.008665 u = 1.674954 X 10 <sup>-24</sup> g
1 kiloWattHour(kWh)	3.6 MJ
1 Joule (J)	1 kg m <sup>2</sup> s <sup>-2</sup> = 1.0 X 10 <sup>7</sup> erg
1 Coulomb(C)	6.24 x 10 <sup>18</sup> e <sup>-</sup>
Electronic charge on an electron	1.60217733 X 10 <sup>-19</sup> C
1 Ampere(A)	1 Coulomb/s
1 Volt(V)	1 J/C = 96.5 kJ/mole
1 electron volt (eV)	1.60219 x 10 <sup>-19</sup> J
Faraday's Constant	96,486.7 C/mole e <sup>-</sup>