

Conversion Factors

Mass and Density

$$1 \text{ kg} = 2.2046 \text{ lb} = 6.02 \times 10^{26} \text{ u}$$

$$1 \text{ lb} = 453.59 \text{ g} = 16 \text{ oz}$$

$$1 \text{ slug} = 14.6 \text{ kg}$$

$$1 \text{ u} = 1.66 \times 10^{-27} \text{ kg}$$

$$1 \text{ kg/m}^3 = 10^{-3} \text{ g/cm}^3$$

Length and Volume

$$1 \text{ m} = 100 \text{ cm} = 39.4 \text{ in} = 3.28 \text{ ft}$$

$$1 \text{ mi} = 1.61 \text{ km} = 5280 \text{ ft}$$

$$1 \text{ in} = 2.54 \text{ cm}$$

$$1 \text{ nm} = 10^{-9} \text{ m} = 10 \text{ \AA}$$

$$1 \text{ pm} = 10^{-12} \text{ m} = 1000 \text{ fm}$$

$$1 \text{ light-year} = 9.46 \times 10^{15} \text{ m}$$

$$1 \text{ m}^3 = 1000 \text{ L} = 35.3 \text{ ft}^3 = 264 \text{ gal}$$

$$1 \text{ L} = 1.0567 \text{ qt} = 10^3 \text{ cm}^3$$

$$1 \text{ gal} = 4 \text{ qt} = 3.7854 \text{ L}$$

Time

$$1 \text{ d} = 86400 \text{ s}$$

$$1 \text{ y} = 365\frac{1}{4} \text{ d} = 3.16 \times 10^7 \text{ s}$$

Angular Measure

$$1 \text{ rad} = 57.3^\circ = 0.159 \text{ rev}$$

$$\pi \text{ rad} = 180^\circ = \frac{1}{2} \text{ rev}$$

Metric

$$1 \text{ Giga} = 10^9 \text{ units}$$

$$1 \text{ Mega} = 10^6 \text{ units}$$

$$1 \text{ Kilo} = 1000 \text{ units}$$

$$1 \text{ Deci} = .1 \text{ units}$$

$$1 \text{ Centi} = .01 \text{ units}$$

$$1 \text{ Milli} = .001 \text{ units}$$

$$1 \text{ Micro} = 10^{-6} \text{ units}$$

$$1 \text{ Nano} = 10^{-9} \text{ units}$$

$$1 \text{ Pico} = 10^{-12} \text{ units}$$

$$1 \text{ Femto} = 10^{-15} \text{ units}$$

Speed

$$1 \text{ m/s} = 3.28 \text{ ft/s} = 2.24 \text{ mi/h}$$

$$1 \text{ km/h} = 0.621 \text{ mi/h} = 0.278 \text{ m/s}$$

Force and Pressure

$$1 \text{ N} = 10^5 \text{ dyne} = 0.225 \text{ lb}$$

$$1 \text{ lb} = 4.45 \text{ N}$$

$$1 \text{ ton} = 2000 \text{ lb}$$

$$1 \text{ Pa} = 1 \text{ N/m}^2 = 10 \text{ dyne/cm}^2$$

$$= 1.45 \times 10^{-4} \text{ lb/in}^2$$

$$1 \text{ atm} = 1.01 \times 10^5 \text{ Pa} = 14.7 \text{ lb/in}^2$$

$$= 76 \text{ cm-Hg} = 760 \text{ torr}$$

Energy and Power

$$1 \text{ J} = 10^7 \text{ erg} = 0.239 \text{ cal} = 0.738 \text{ ft}\cdot\text{lb}$$

$$1 \text{ kW}\cdot\text{h} = 3.6 \times 10^6 \text{ J}$$

$$1 \text{ cal} = 4.184 \text{ J}$$

$$1 \text{ eV} = 1.602 \times 10^{-19} \text{ J}$$

$$1 \text{ horsepower} = 746 \text{ W} = 550 \text{ ft}\cdot\text{lb/s}$$

Magnetism

$$1 \text{ T} = 1 \text{ Wb/m}^2 = 10^4 \text{ gauss}$$

Temperature

$$0 \text{ K} = -273.15^\circ\text{C} = -459.67^\circ\text{F}$$

$$\text{K} = ^\circ\text{C} + 273.15$$

$$^\circ\text{C} = \frac{5}{9} (^\circ\text{F} - 32^\circ)$$

$$^\circ\text{F} = \frac{9}{5} (^\circ\text{C}) + 32^\circ$$

Constants on other side

Constants

Atomic mass unit	1 amu	$1.6605402 \times 10^{-27}$ kg
	1 g	6.0221367×10^{23} amu
Avogadro constant	N_A	6.0221367×10^{23} mol ⁻¹
Bohr magneton	μ_B	9.27×10^{-24} J/T
		5.79×10^{-5} eV/T
Bohr radius	a	5.29×10^{-11} m
Boltzmann constant	k	1.38×10^{-23} J/K
		8.62×10^{-5} eV/K
Deuteron mass	m_d	3.34×10^{-27} kg
Electron mass	m_e	9.11×10^{-31} kg
Elementary charge	e	$1.60217733 \times 10^{-19}$ C
Faraday's constant	F	$Ne = 9.65 \times 10^4$ C/mol
Gravitational constant	G	6.67×10^{-11} N·m ² /kg ²
Mass-energy relation	c^2	8.99×10^{16} J/kg
		931.5 MeV/u
Neutron mass	m_n	1.68×10^{-27} kg
Permeability constant	μ_0	1.26×10^{-6} H/m
Permittivity constant	ϵ_0	8.85×10^{-12} F/m
Pi	π	3.1415926536
Planck constant	h	$6.6260755 \times 10^{-34}$ J·s
		4.14×10^{-15} eV·s
Proton mass	m_p	1.67×10^{-27} kg
Rydberg constant	R	0.01097 nm ⁻¹
Speed of light	c	2.99792458×10^8 m/s
Universal gas constant	R	8.31 J/mol·K

Conversion Factors on other side