Appendix

Greek Characters

Symbol	Name
α	Alpha
β	Beta
χ	Chi
$\Gamma\ \gamma$	Gamma
$\Delta\ \delta$	Delta
ϵ	Epsilon
ϵ_0	Epsilon Nought
ζ	Zeta
η	Eta
$\Theta\ \theta$	Theta
κ	Kappa
$\Lambda\ \lambda$	Lambda
μ	Mu
μ_0	Mu Nought
ν	Nu
$\Xi\ \xi$	Xi
$\Pi\ \pi$	Pi
ρ	Rho
$\Sigma\ \sigma$	Sigma
τ	Tau
$\Phi\ \varphi\ \phi$	Phi
$\Psi\ \psi$	Psi
$\Omega\ \omega$	Omega

SI Base Units

Name	Symbol	Measure	Dim. Analysis Symbol
Second	s	Time	T
Meter	m	Length	L
Kilogram	kg	Mass	M
Ampere	A	Electric Current	I
Kelvin	K	Temp	Θ
Mole	mol	Amount of substance	N
Candela	cd	Luminous Intensity	J

SI Prefixes

Prefix	Symbol	Factor	Meaning
Pico	p	10^{-12}	Trillionth
Nano	n	10^{-9}	Billionth
Micro	μ	10^{-6}	Millionth
Milli	m	10^{-3}	Thousandth
Centi	c	10^{-2}	Hundredth
Deci	d	10^{-1}	Tenth
Kilo	K	10^{3}	Thousand
Mega	M	10^{6}	Million
Giga	G	10^{9}	Billion
Tera	T	10^{12}	Trillion

Constants

Gravitational Constant

$G = 6.67430 \text{ x } 10^{-11}\ \text{m}^3 \cdot \text{kg}^{-1} \cdot \text{s}^{-2}$

Earth Topics

$m_{Earth} = 5.97 \text{ x } 10^{24}\ \text{kg}$

$r_{Earth} = 6.38 \text{ x } 10^{6}\ \text{m}$

Gravity on Earth

$g = 9.81\ \text{m/s}^2$ or $32.17\ \text{ft/s}^2$

Atmospheric Pressure

$1\ \text{atm} = 101325\ \text{pa} = 760.00\ \text{mmHg}$

Avogadro Constant

$N_A = 6.022 \text{ x } 10^{23}\ \text{mol}^{-1}$

Gas Constant

$R = 8.31\ \text{J/(mol} \cdot \text{K)}$

Boltzmann Constant

$k_b = 1.38 \text{ x } 10^{23}\ \text{J/K}$

Speed of Sound

$v_s = 343\ \text{m/s}$

➔ When on earth at 20° C or 68° F

Reference Sound Intensity

$I_0 = 10^{-12}\ \text{W/m}^2$

➔ Where I_0 is the lowest sound intensity able to be heard by an undamaged human ear (in room conditions)

Elementary Charge

$e = 1.602 \text{ x } 10^{-19}\ \text{C}$

➔ This could be the charge of a single proton, or the magnitude of a single electron

Coulomb Constant

$k_e = 8.988 \text{ x } 10^{9}\ \text{N} \cdot \text{m}^2 \cdot \text{C}^{-2} = \frac{1}{4\pi\epsilon_0}$

Vacuum Permittivity

$\epsilon_0 = 8.854 \text{ x } 10^{-12}\ \text{F} \cdot \text{m}^{-1}$

Permeability of Free Space

$4\pi \cdot 10^{-7} \frac{Tm}{A}$

Mass of a Proton

$m_{proton} = 1.672 \text{ x } 10^{-27} \text{ kg} = 938.27 \text{ MeV/c}^2$

Mass of an Electron

$m_{electron} = 9.11 \text{ x } 10^{-31} \text{ kg} = 0.511 \text{ MeV/c}^2$

Speed of Light (vacuum)

$c = 2.998 \text{ x } 10^{8} \text{ m/s}$

Planck's Constant

$h = 6.626 \text{ x } 10^{-34} \text{ J} \cdot \text{s}$

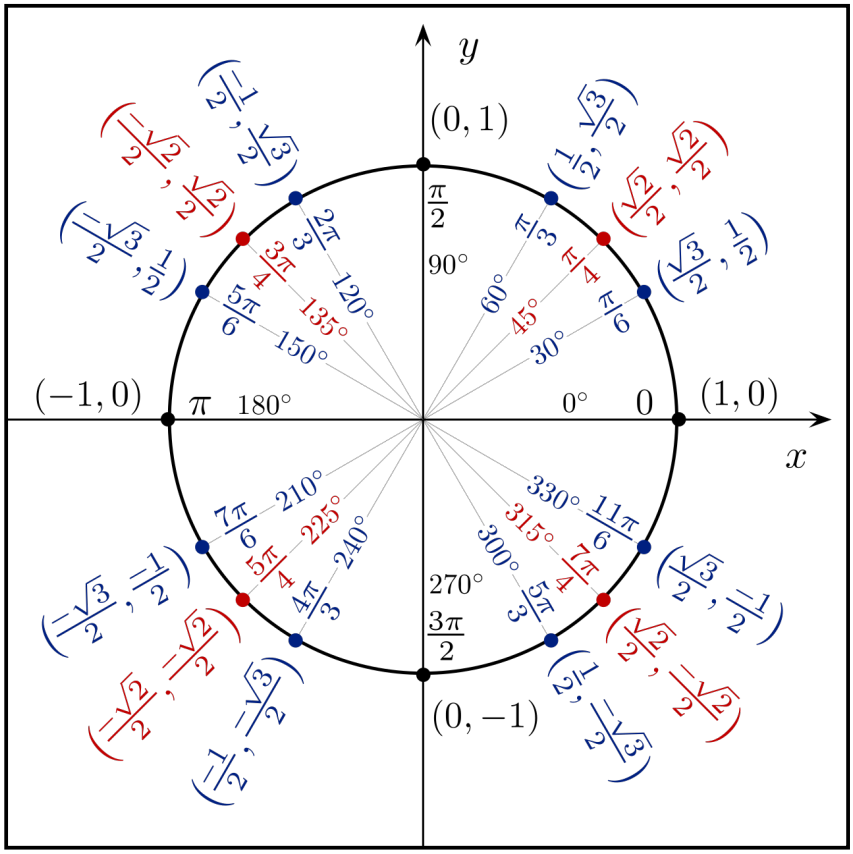
$h = 4.14 \text{ x } 10^{-15} \text{ eV} \cdot \text{s}$

$\hbar = \frac{h}{2\pi}$

Bohr Radius

$a_b = 0.0529 \text{ nm}$

Unit Circle



https://en.wikipedia.org/wiki/Unit_circle