

Data Sheet

Common Formula's:

<p><i>Simple Mechanics</i></p> <ul style="list-style-type: none"> • 2nd law of Newton $F = ma$ • Gravitational force $F = mg$ • Momentum of an object $p = mv$ • Power $P = \frac{W}{t}$ • Work $W = fs$ • Centrifugal Force: $F_{cen} = \frac{mv^2}{r}$ • Pressure $p = \frac{F}{A}$ • Acceleration $x = \frac{1}{2}at^2$ 	<p><i>Atomic Physics</i></p> <ul style="list-style-type: none"> • Lorentz force $F_L = Bqv$ • Energy of a photon $U_f = \frac{hc}{\lambda}$ • Broglie $\lambda = \frac{h}{m_0v} = \frac{h}{p}$ <p><i>Astrophysics</i></p> <ul style="list-style-type: none"> • Gravitational Force $F_g = G \frac{m_1m_2}{r^2}$ • Gravitational Energy $U_p = -G \frac{m_1m_2}{r}$ • Wien $\lambda_{max}T = k_w$
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Constants:

Quantity	Magnitude	Unit	Symbol
speed of light	2.99×10^8	Ms^{-1}	c
Planck constant	6.63×10^{-34}	Js	h
Boltzmann constant	1.38×10^{-23}	JK^{-1}	k
Avogadro constant	6.02×10^{23}	Mol^{-1}	N_a
mass of proton	1.672×10^{-27}	kg	m_p
mass of neutron	1.674×10^{-27}	Kg	m_n
mass of electron	9.31×10^{-31}	Kg	m_e
charge on proton	$+1.6 \times 10^{-19}$	C	e
charge on electron	-1.6×10^{-19}	C	e
specific charge on electron	-1.76×10^{11}	$C kg^{-1}$	e/m_e
permittivity of vacuum	8.85×10^{-12}	$F m^{-1}$	ϵ_0
permeability of vacuum	4×10^{-7}	$H m^{-1}$	μ_0
Stefan constant	5.67×10^{-8}	$W m^{-2} K^{-4}$	σ
molar gas constant	8.31	$J mol^{-1} K^{-1}$	R
gravitational constant	6.67×10^{-11}	$N m^2 kg^{-2}$	G
Faraday constant	9.65×10^4	$C mol^{-1}$	F

Information about the Solar System

	<i>Distance To the Sun ($10^{12}m$)</i>	<i>Radius (10^6m)</i>	<i>Mass ($10^{24}kg$)</i>	<i>Number of Moons</i>	<i>Rotation h,d</i>	<i>Rotation (Sun) d, j</i>
<i>Sun</i>	-	969.0	1989000	-	25.38 d	-
<i>Mercury</i>	0.0579	2.433	0.318	0	58.65 d	87.97 d
<i>Venus</i>	0.1082	6.080	4.881	0	-244 d	224.70 d
<i>Earth</i>	0.1496	6.378	5.976	1	23.93 h	365.256 d
<i>Mars</i>	0.2280	3.386	0.641	2	1.026 d	686.98 d
<i>Jupiter</i>	0.7783	71.37	1900	15+	0.413 d	11.86 j
<i>Saturn</i>	1.429	60.37	568.1	22+	0.43 d	29.46 j
<i>Uranus</i>	2.875	25.6	86.78	15+	-17.2 h	84.02 j
<i>Neptune</i>	4.504	22.7	102.6	5+	0.66 d	164.8 j
<i>Pluto</i>	5.91	1.1	0.013	1	6.41 d	247.2 j

Information about selected metals and gasses

	<i>Symbol</i>	<i>Atomic Number</i>	<i>Density (10^3kgm^{-3})</i>	<i>Melting Point ($^{\circ}C$)</i>	<i>Boiling Point ($^{\circ}C$)</i>
<i>Aluminum</i>	AL	13	2.70	660.37	2467.0
<i>Hydrogen</i>	H	1	0.000090	-259.14	-252.87
<i>Iron</i>	FE	26	7.87	1535.0	2750.0
<i>Nitrogen</i>	N	7	0.000125	-209.9	-195.8
<i>Oxygen</i>	O	8	0.000143	-218.4	-183.0
<i>Silver</i>	AG	47	10.50	961.93	2212.0