Units

Metric System

Dimension	Symbol	Unit	Symbol
Mass	M	kilogram	kg
Length	L	meter	m
Time	T	second	s
Temperature	Θ	kelvin	K
Amount of substance	N	mole	mol
Light Intensity	J	candela	cd
Electric current	I	ampere	A

SI Prefixes

Power of 10	Prefix	Abbreviation
10^{-15}	femto	f
10^{-12}	pico	p
10^{-9}	nano	n
10^{-6}	micro	μ
10^{-3}	milli	m
10^{-2}	centi	c
10^{3}	kilo	k
10^{6}	Mega	M
10^{9}	Giga	G
10^{12}	Tera	T
10^{15}	Peta	P

Other Unit Systems

Dimension	SI (MKS)	AES	USCS
Lenth	meter [m]	foot [ft]	foot [ft]
Mass	kilogram [kg]	pound-mass [lb_m]	slug
Time	second [s]	second [s]	second [s]
Temperature	kelvin [K] Celsius [°C]	Fahrenheit [°F] Rankine [°R]	Fahrenheit [°F] Rankine [°R]

Acceptable Non-SI Units:

Unit	**Equivalent SI**
Astronomical Unit [AU]	1 AU = 1.4959787 $\times 10^{11}$ m
Atomic mass unit [AMU]	1 amu = 1.6605402 $\times 10^{-24}$ g
Liter [L]	1 L = 0.001 m^3
day [d]	1 d = 86400 s
hour [h]	1 h = 3600 s
minute [min]	1 min = 60 s
year	1 year = 3.16 $\times 10^7$ s
degree [°]	$1° = \pi/180$ rad

Conversion Factors

Conversion factors for length:

1 m=3.28 ft
1 km = 0.62 mi
1 ft = 12 in
1 in = 2.54 cm
1 mi = 5280 ft
1 yd = 3 ft

Conversion factors for time:

1 d = 24 h
1 h = 60 min
1 min = 60 s
1 yr = 365 d

Conversion factors for volume:

1 L = 0.264 gal
1 L = 0.0353 ft^3
1 L = 33.8 fl oz
1 m^3 = 1000 L
1 mL = 1 cm^3

Common Derived Units

Dimension	SI Unit	Base SI Units	Derived From
Force (F)	newton [N]	1 N = 1 $\frac{\text{kg}\cdot\text{m}}{\text{s}^2}$	F = ma
Energy (E)	joule [J]	1 J = 1 N m	E = Fd
Power (P)	watt [W]	1 W = 1 $\frac{\text{J}}{\text{s}}$	P = E/t
Pressure (P)	pascal [Pa] atmosphere [atm]	1 Pa = 1 $\frac{\text{N}}{\text{m}^2}$ 1 atm = 101325 Pa	P = F/A
Voltage (V)	volt [V]	1 V = 1 $\frac{\text{W}}{\text{A}}$	V = P/I

Common English Units

Dimension	English Unit	Base English Units	Derived from
Mass (m)	pound mass (lb_m)	$\frac{\text{lbf}\cdot\text{s}^2}{32.2\ \text{ft}}$	$m = \frac{F}{a}$
Power (P)	horsepower (hp)	550 $\frac{\text{lb}_\text{f}\cdot\text{ft}}{\text{s}}$	$P = \frac{Fd}{t}$