

# Units and System Conversions

Table of Prefixes <sup>1)</sup>

prefix	symbol	factor
exa	E	$10^{18}$
peta	P	$10^{15}$
tera	T	$10^{12}$
giga	G	$10^9$
mega	M	$10^6$
kilo	k	$10^3$
deka	d	$10^2$
base	none	$10^0$
centi	c	$10^{-2}$
milli	m	$10^{-3}$
micro	$\mu$	$10^{-6}$
nano	n	$10^{-9}$
pico	p	$10^{-12}$
femto	f	$10^{-15}$
atto	a	$10^{-18}$

## System Dimensionality Conversions

From [Dimensional\\_analysis](#)

There are many possible choices of base physical dimensions. The SI standard selects the following dimensions and corresponding dimension symbols:

time (T), length (L), mass (M), electric current (I), absolute temperature ( $\Theta$ ), amount of substance (N) and luminous intensity (J).

Dim	SI	UCS <sup>2)</sup>
L	2.54cm	1in
M	2.2046kg	1lb

## Temperature Conversions

$$T_F = \frac{9}{5}T_C + 32$$

$$T_C = \frac{5}{9}(T_F - 32)$$

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

$$0^{\circ}\text{F} = 456.67^{\circ}\text{R}$$
 <sup>3)</sup>

$$T_R = \frac{5}{9}T_K$$

# IEC Binary Prefixes

The primary system in which binary unit magnitudes are represented. Intended to replace SI units for digital measurements, where numbers are represented in base-2 rather than base-10. Thus, when referring to units, generally KB is the SI interpretation of  $1 \cdot 10^3$  whereas 1KiB refers to the IEC interpretation of  $1 \cdot 2^{10}$  in base-2.

Prefix	Symbol	Factor
base	none	$2^1$
kibi	Ki	$2^{10}$
mebi	Mi	$2^{20}$
gibi	Gi	$2^{30}$
pebi	Pi	$2^{40}$
exbi	Ei	$2^{50}$

<sup>1)</sup>

see [NIST Special Publication 1038](#)

<sup>2)</sup>

United States Customary Units

<sup>3)</sup>

Rakine is also archaically notated as  $\$R\$$  or  $\$^{\circ}Ra\$$

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