

Conversion Factors

NOTE: All equalities are EXACT (i.e. ∞ number of SF), except those marked with an asterisk (*)

ENGLISH/US SYSTEM

Mass

These are actually units of force (weight). $w = mg$

1 ton = 2000 lb (pounds)
1 lb = 16 oz (ounces)

Length

1 mi (mile) = 5,280 ft (feet)
1 yd (yard) = 3 ft
1 ft = 12 in (inches)

Volume

1 gal (gallon) = 4 qt (quarts)
1 qt = 2 pints
1 pint = 2 cups
1 pt = 8 fl oz (fluid ounces)

METRIC SYSTEM BASE UNITS

Length: meter (m)
Mass: gram (g)
Volume: liter (L)

SI SYSTEM UNITS

Length: meter (m)
Mass: kilogram (kg)
Time: second (s)
Temperature: kelvin (K)
Amount: mole (mol)
Electric current: ampere (A)

Any unit can be modified by adding a prefix to a base unit. The value of the prefixed unit is the numerical equivalent of the base unit (e.g. 1 μ L = .000001 L)

PREFIX	ABBR	NUMERIC EQUIVALENT
giga	G	10^9 or 1,000,000,000
mega	M	10^6 or 1,000,000
kilo	k	10^3 or 1,000
hecto	h	10^2 or 100
deka	da	10^1 or 10
-	-	10^0 or 1
deci	d	10^{-1} or .1
centi	c	10^{-2} or .01
milli	m	10^{-3} or .001
micro	μ	10^{-6} or .000,001
nano	n	10^{-9} or .000,000,001
pico	p	10^{-12} or .000,000,000,001

TEMPERATURE CONVERSIONS:

$$T_F = 1.8 T_C + 32 \quad T_C = \frac{T_F - 32}{1.8} \quad T_K = T_C + 273 \quad T_C = T_K - 273$$

OTHER IMPORTANT METRIC EQUALITIES:

$$1 \text{ cm}^3 = 1 \text{ mL}$$

$$1 \text{ dm}^3 = 1 \text{ L}$$

$$1 \text{ angstrom } (\text{Å}) = 10^{-10} \text{ m}$$

ENGLISH - METRIC BRIDGE EXAMPLES

Mass

1 lb = 453.6 g *
1 kg = 2.205 lb *

Length

1 in = 2.54 cm
1 m = 1.094 yd *
1 mi = 1.609 km *

Volume

1 L = 1.0567 qt*
1 ft³ = 28.32 L *