Chapter 1

SI units

SI Base unit

(7 units in the table)

SI Derived units

Volume

Area

Density

SI prefixes

TABLE 1.3 Prefixes Used with SI Units

Prefix	Symbol	Meaning	Example
tera-	T	1,000,000,000,000, or 10^{12}	1 terameter (Tm) = 1×10^{12} m
giga-	G	1,000,000,000, or 10^{9}	1 gigameter (Gm) = 1×10^{9} m
mega-	M	1,000,000, or 10^{6}	1 megameter (Mm) = 1×10^{6} m
kilo-	k	1,000, or 10^{3}	1 kilometer (km) = 1×10^{3} m
		1 m	
deci-	d	1/10, or 10^{-1}	1 decimeter (dm) = 0.1 m
centi-	c	1/100, or 10^{-2}	1 centimeter (cm) = 0.01 m
milli-	m	1/1,000, or 10^{-3}	1 millimeter (mm) = 0.001 m
micro-	μ	1/1,000,000, or 10^{-6}	1 micrometer (μm) = 1×10^{-6} m
nano-	n	1/1,000,000,000, or 10^{-9}	1 nanometer (nm) = 1×10^{-9} m
pico-	p	1/1,000,000,000,000, or 10^{-12}	1 picometer (pm) = 1×10^{-12} m

- Memorize the different prefixes and their meanings
- Converting between SI prefixes, examples

nm → Gm

- Different methods to convert between units, you need just one method

Measurements

Mass

SI unit = kg

1000 g = 1 kg

Volume:

SI derived unit = m^3

Common unit:

$dm^3 = L = 1x10^{-3}\ m^3$

$cm^3 = ml = 1x10^{-6}\ m^3$

Density

SI derived unit = kg/m^3

Common unit:

$g/L = kg/m^3$

$g/cm^3 = g/ml = 1000\ kg/m^3$

Temperature:

SI unit = K

common unit: F , ^oC

$K = {}^oC + 273.15$

$^oF = 9/5 \times {}^oC + 32$

$^oC = 5/9 \times ({}^oF - 32)$

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