

# INTRODUCTION

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## Fundamental 7 Units in SI

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Base Quantity	Name of Unit	Symbol
Length	meter	m
Mass	kilogram	kg
Time	second	s
Electrical current	Ampere	A
Temperature	Kelvin	K
Amount of Substance	Mole	mol
Luminous intensity	Candela	Cd

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## Supplementary Units

There are two supplementary units, which are as follows:

Physical quantity	Supplementary Units	
	Name	Symbol
1. Plane angle	radian	rad
2. Solid angle	steradian	sr

## Derived Units in SI

Quantity	S.I. Unit	Special Name
Area	$m^2$	
Volume	$m^3$	
Density	$kg/m^3$	
Velocity	$m/s$	
Acceleration	$m/s^2$	
Force	$kgm/s^2$	newton, N
Frequency	$cycles/s$	hertz, Hz
Energy	$kg \cdot m^2/s^2$	joule, J
Concentration	$mole/m^3$	
Molar mass	$kg/mol$	
Pressure	$kg/m \cdot s^2$	pascal, Pa

# SI Prefixes for Multiples and Fractions of SI Units

Multiple	Prefix	Symbol
$10^{18}$	exa	E
$10^{15}$	peta	P
$10^{12}$	tera	T
$10^9$	giga	G
$10^6$	mega	M
$10^3$	kilo	K
$10^2$	hecto	h
$10^1$	deca	da
$10^{-1}$	deci	d
$10^{-2}$	centi	c
$10^{-3}$	milli	m
$10^{-6}$	micro	$\mu$
$10^{-9}$	nano	n
$10^{-12}$	pico	p
$10^{-15}$	femto	f
$10^{-18}$	atto	a

**Meter** → It is defined as the length equal to 1,650,763.73 wavelengths in vacuum of the orange red of the spectrum of krypton-86.

- Kilogram** → It is defined as the mass of a cylinder of platinum-iridium alloy kept by the international bureau of weights and measures at Paris.
- Second** → It is defined as the duration of 9,192,631,770 cycles of the radiation associated with specified transition of cesium 133.
- Ampere** → It is defined as the current that, when flowing through each of two long parallel wires separated by 1 meter of free space, results in a force between the wires of  $2 \times 10^{-7}$  newton per meter of length.
- Kelvin** → It is defined as the fraction  $\frac{1}{273.16}$  of the **temperature of the absolute zero**, triple point of water.
- Mole** → It is defined as the amount of a substance that contains as many entities as there are atoms in exactly 0.012 kilogram of carbon-12.

**Candela** → It is defined as the luminous intensity of  $\frac{1}{600,000}$  of a square meter of a black body at the temperature of freezing platinum (2045 K).

### **Do you know?**

- Oxalic acid is obtained from : Cane sugar and sorrel plant
- Formic acid is obtained from : Red ants
- Uric acid is obtained from : Urine
- Glycerine is obtained from : Olive oil
- Citric acid is obtained from : Lemon
- Malic acid is obtained from : Apples
- Lactic acid is obtained from : Sour milk