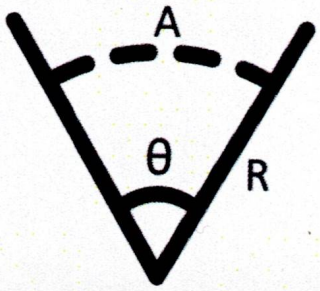
UNITS AND DIMENSIONS

Area	$[L^2]$	m^2
Volume	$[L^3]$	m^3
Velocity	$[LT^{-1}]$	ms^{-1}
Acceleration	$[LT^{-2}]$	ms^{-2}
Force	$[MLT^{-2}]$	Newton (N)
Work or Energy	$[ML^2T^{-2}]$	Joule
Power	$[ML^2T^{-3}]$	Js^{-1} or W
Pressure or Stress	$[ML^{-1}T^{-2}]$	Nm^{-2}
Linear Momentum/Impulse	$[MLT^{-1}]$	$kg\ ms^{-1}$
Density	$[ML^{-3}]$	$kg\ m^{-3}$
Modulus of elasticity	$[ML^{-1}T^{-2}]$	Nm^{-2}
Surface Tension	$[MT^{-2}]$	Nm^{-1}
Velocity Gradient	$[T^{-1}]$	s^{-1}
Coefficient of Viscosity	$[ML^{-1}T^{-1}]$	$kg\ m^{-1}s^{-1}$
Gravitational Constant	$[M^{-1}L^3T^{-2}]$	Nm^2
Moment of Inertia	$[ML^2]$	$kg\ m^2$
Angular Velocity	$[T^{-1}]$	$rad\ s^{-1}$
Angular acceleration	$[T^{-2}]$	$rad\ s^{-2}$
Angular Momentum	$[ML^2T^{-1}]$	$kg\ m^2s^{-1}$

Specific Heat	$[LT^{-2}K^{-1}]$	$JK^{-1}kg^{-1}$
Latent Heat	$[L^2T^{-2}]$	Jkg^{-1}
Planck's Constant	$[ML^2T^{-1}]$	Js
Pressure Gradient	$[ML^{-2}T^{-2}]$	$Pa\ m^{-1}$
Spring Constant	$[MT^{-2}]$	Nm^{-1}
Torque	$[ML^2T^{-2}]$	Nm
Energy Density	$[ML^{-1}T^{-2}]$	Jm^{-3}
Electric Field	$[MLT^{-3}A^{-1}]$	NC^{-1}
Young's modulus	$[ML^{-1}T^{-2}]$	Pa (Pascal)
Stopping Potential	$[ML^2T^{-3}A^{-1}]$	V (Volt)
Boltzmann Constant	$[ML^2T^{-2}K^{-1}]$	JK^{-1}
Inductance	$[ML^2T^{-2}A^{-2}]$	H (Henry)
Decay Constant	$[T^{-1}]$	s^{-1}
Wave No./Rydberg Const	$[L^{-1}]$	m^{-1}
Retentivity	$[AL^{-1}]$	$Wb\ m^{-2}$
Coercivity, Magnetism	$[MT^{-2}A^{-1}]$	T (Tesla)
Permeability of Free Space	$[MLT^{-2}A^{-1}]$	Hm^{-1}
Magnetic Induction	$[MT^{-2}A^{-1}]$	T (Tesla)
Magnetic Flux	$[ML^2T^{-2}A^{-1}]$	Wb
Thermal Conductivity	$[MLT^{-3}K^{-1}]$	$W\ m^{-1}K^{-1}$
Magnetic Dipole Moment	$[L^2A]$	Am^2

Some Important Formula



$$l = R\theta$$

$$A = \Omega R^2$$

Principle of Homogenity

$$[x] = [y] = [z]$$

Error Analysis

$\bar{x}$ = true value | x_i = observed | Δx_i = error

$$\bar{x} = \frac{x_1 + x_2 + \cdots + x_n}{n}$$

$$\Delta x_i = x_i - \bar{x}$$

$$\Delta \bar{x} = \frac{|\Delta x_1| + |\Delta x_2| + \cdots + |\Delta x_n|}{n}$$

Fractional Error	% Error
$\frac{\Delta \bar{x}}{x_m}$	$\frac{\Delta \bar{x}}{x_m} \times 100$

Error in Add/Sub	Error in Multiply/Divide
$z = x \pm y$	$z = x.y$ or $\frac{x}{y}$
$\Delta z = \pm(\Delta x + \Delta y)$	$\text{error} = \frac{\Delta z}{z} = \pm\left(\frac{\Delta x}{x} + \frac{\Delta y}{y}\right)$

Exponent (error) $z = x^n$	$\frac{\Delta z}{z} = \pm n \frac{\Delta x}{x}$

Vernier Calliper

$LC = 1MSD - 1VSD$	$Reading = MSR + (LC \times VSR)$

$$Pitch = \frac{\text{Distance moved in the pitch scale}}{\text{Number of rotation given in the circular scale}}$$

Screw Gauge

$$Least\ Count = \frac{Pitch}{\text{total number of division on the circular scale}}$$

$$Thickness = Pitch\ scale + Head\ scale\ reading\ (HSD \times LC)$$

Significant Figures

Number	No. of Significant Figures
50000	One
0.008	One
89	Two
0.0012	Two
4.9210	Five
1002	Four