Density	$\rho = \frac{m}{V}$	ρ(rho) = density (kg/m³ or g/cm³) m = mass (kg or g) V = volume (m³ or cm³)
Constant Speed (only)	$s = \frac{D}{t}$	S = speed (m/s) D = distance (m) t = time (s)
Average speed	$average\ speed = \frac{Total\ distance}{Total\ time}$	Average speed = (u + v)/2 u = initial speed (m/s) v = final speed (m/s)
Acceleration	$a = \frac{v-u}{t}$	a = acceleration (m/s²) u = initial velocity (m/s) v = final velocity (m/s)
Newton's 2nd law	$F = m \times a$	F = force (N) m = mass(kg) a = acceleration (m/s²)
Weight	$W = m \times g$	W = weight (N) g = gravity (m/s²) = 10 m/s² m = mass (kg)
Moment	$Moment = F \times d$	F = Force (N) d = perpendicular distance from pivot (m or cm)
principle of moment	$M_{clockwise} = M_{anticlockwise}$	
Momentum	$p = m \times v$	p = momentum (kgm/s) m = mass (kg) v = velocity (m/s)
Impulse	$I = mv - mu = Ft$	I = Impulse (Ns or kgm/s) m = mass (kg) u = initial velocity (m/s) v = final velocity (m/s) F = Force (N) t = time (s)
D-t graph	Gradient of D-t graph = speed	
s-t graph	Gradient of s-t graph = acceleration	

s-t graph	Area under s-t graph = distance	Area of trapezium =1/2× (a+b)×h a and b are parallel sides
Pressure	$p = \frac{F}{A}$	P = pressure (Pa=Pascal or N/m²) F = force (N) A = area (m²)
Pressure in liquid	$p = \rho \times g \times h$	ρ = density (kg/m³) g = gravity = 10 m/s² h = height or depth (m)
Boyle's law	$p_1 \times V_1 = p_2 \times V_2$	P = pressure(Pa) V = volume(m³)
Charles' law	$\frac{V_1}{T_1} = \frac{V_2}{T_2}$	V = volume(m³) T = temperature(K=Kelvin)
Pressure law	$\frac{p_1}{T_1} = \frac{p_2}{T_2}$	P = pressure(Pa) T = temperature(K)
Gas law	$\frac{p_1 \times V_1}{T_1} = \frac{p_2 \times V_2}{T_2}$	P = pressure(Pa) T = temperature(K) V = volume(m³)
Work done	$W = F \times d$	W = work done (J=joule) F = force(N) d = distance moved in direction of force (m)
Specific Heat capacity	$Q = m \times c \times \Delta T$	Q = heat energy(J) m = mass(kg) c = specific heat capacity(J/kg C°) ΔT = change in temperature (C°)
Specific Latent heat	$Q = m \times L$	Q = heat energy (J) m = mass(kg) L = specific latent heat (J/kg)
Thermal Capacity	$C = \frac{Q}{\Delta T}$	Q = heat energy(J) C = Thermal capacity(J/C°) ΔT = change in temperature (C°)
Gravitational potential energy	$GPE = m \times g \times h$	GPE = gravitational potential energy (J) g = gravity (10 m/s²) h = height (m)

Kinetic energy	$KE = \frac{1}{2}mv^2$	KE = kinetic energy(J) m = mass(kg) v = velocity(m/s)
Power	$P = \frac{E}{t}$	P=power (W=Watt or J/s) E = energy or Work done(J) t = time(s)
Efficiency	$Eff = \frac{E_{out}}{E_{in}} = \frac{P_{out}}{P_{in}}$	E_{out} = useful energy output (J) E_{in} = energy input(J) P_{out} = power output(W) P_{in} = power input(W)
Frequency	$f = \frac{1}{T}$	f = frequency(Hz=hertz) T = time period(s)
Wave equation	$v = f \times \lambda$	v = velocity of wave (m/s) f = frequency (Hz) λ(lambda) = wavelength (m)
Refractive index (no unit)	$\frac{n_2}{n_1} = \frac{\sin\theta_i}{\sin\theta_r}$	n_1 = refractive index in medium 1 n_2 = refractive index in medium 2 θ_i = angle of incidence θ_r = angle of refraction refractive index in air = 1
Refractive index (n)	$n = \frac{speed\ of\ light\ in\ vacuum}{speed\ of\ light\ in\ medium}$	speed of light in vacuum = 3×10^8 m/s ≈ in air
Critical angle	$\sin\theta_c = \frac{1}{n}$	θ_c = critical angle n = refractive index
Current (I)	$I = \frac{Q}{t}$	I = current (A or C/s) Q = charge (C=coulomb) t = time (s)
Voltage or Potential Difference (V)	$V = \frac{E}{Q}$	V = voltage or Potential Difference (V or J/V) E = energy (J) Q = charge (C)
Ohm's law	$V = I \times R$	V = voltage(V) I = current(A) R = resistance (Ω = Ohm)

Electrical Power	$P = V \times I$ $P = I^2 \times R$ $P = \frac{V^2}{R}$ $E = VIt$	P = Power (W or J/s) V = Voltage (V) I = Current (A) R = Resistance (Ω) t = time (s)
Combine resistance in series circuit	$R_T = R_1 + R_2 + R_3 ...$	
Combine resistance in parallel circuit	$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} ...$	Don't forget to flip it back. For 2 resistors $R_T = \frac{R_1 \times R_2}{R_1 + R_2}$
Transformer	$\frac{n_1}{n_2} = \frac{V_1}{V_2}$	n_1 = no. of turns in primary n_2 = no. of turns in secondary V_1 = voltage input V_2 = voltage output
Transformer (Efficiency 100%)	$\boldsymbol{P_{in} = P_{out}}$ $I_1 \times V_1 = I_2 \times V_2$	I_1 = current input(A) I_2 = current output(A) V_1 = voltage input(V) V_2 = voltage output(V)

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