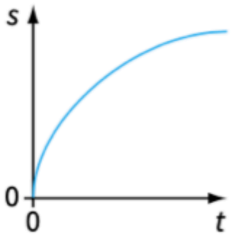
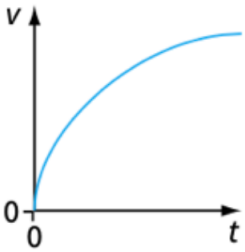
1. SI unit：kg m s A K

2. Density: $\rho = \frac{m}{V}$

3. Speed: $v = \frac{s}{t} = \frac{\Delta s}{\Delta t}$



Slope = speed



Slope = acceleration
Area = distance

4. Acceleration: $a = \frac{\Delta v}{\Delta t} = \frac{v - u}{\Delta t}$

5. Uniformly accelerated motion: $\bar{v} = \frac{u + v}{2}$; $s = \frac{u + v}{2}t$; $u^2 - v^2 = 2as$

6. Weight: $W = mg$

7. Resultant force: $F = ma$

8. Impulse: $F\Delta t = mv - mu = \Delta p$

9. Momentum: $p = mv$

10. Conservation of momentum: $m_1\overrightarrow{u}_1 + m_2\overrightarrow{u}_2 = m_1\overrightarrow{v}_1 + m_2\overrightarrow{v}_2$

11. Moment: $M = r \times F$

12. Principle of moment: $M_{clockwise} = M_{anti-clockwise}$

13. Hooke's law: $F = kx$

14. Pressure(in general): $p = \frac{F}{A}$; liquid pressure: $p = \rho gh$

15. Gravitational potential energy(g.p.e): $E_p = mgh$

16. Kinetic energy(k.e.): $E_k = \frac{1}{2}mv^2$

17. Efficiency = $\frac{useful\ energy/power\ output}{total\ energy/power\ input} = \frac{total\ energy - wasted\ energy}{total\ energy\ input}$

18. Work done: $W = Fd = \Delta E$

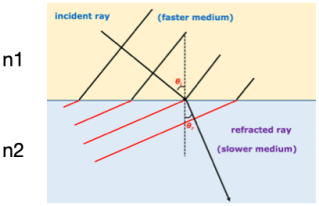
19. Power : $p = \frac{W}{t} = \frac{\Delta E}{t}$

20. Boyle's law: $P_1V_1 = P_2V_2$ (at const T)

21. Kelvin temperature scale: $T(K) = \theta(^{\circ}C) + 273$

22. Specific heat capacity: $c = \frac{\Delta E}{m\Delta\theta}$

23. The law of refraction: $\frac{\sin\theta_i}{\sin\theta_r} = \frac{n_2}{n_1}$



24. Refractive index of a medium: $n = \frac{c}{v}$

25. Critical angle: $\sin\theta_c = \frac{1}{n}$

26. Wave speed: $v = \lambda f; f = \frac{1}{T}$

27. Current: $I = \frac{Q}{t}$

28. Voltage: $V = \frac{W}{Q}$

29. Resistance: $R = \frac{V}{I}$

30. Electrical energy: $E = Pt = VIt = QV$