SPH3U - Equation Sheet

Kinematics

$v_2 = v_1 + a\Delta t$ $\quad$ $\Delta d = v_1\Delta t + \frac{1}{2}a\Delta t^2$ $\quad$ $v_{av} = \frac{\Delta d}{\Delta t} = \frac{(v_1 + v_2)}{2}$

$v_2^2 = v_1^2 + 2a\Delta d$ $\quad$ $a_g = 9.8\frac{m}{s^2}$ $\quad$ $\Delta d = v_2\Delta t - \frac{1}{2}a\Delta t^2$

Dynamics

$\sum F = ma$ $\quad$ $F_g = mg$ $\quad$ $F_f = \mu F_N$

Waves & Sound

$v = f\lambda$ $\quad$ $v_s = 332 + 0.6T$ $\quad$ $T = \frac{1}{f}$ $\quad$ $f_2 = \frac{f_1 v_s}{v_s \pm v_o}$ $\quad$ $\frac{(2n-1)\lambda}{4} = L$ $\quad$ $\frac{n}{2}\lambda = L$

Electricity & Magnetism

$B = \frac{\mu NI}{L}$

Work, Power & Energy

$W = F\Delta d\cos\theta$ $\quad$ $W = \Delta E$ $\quad$ $E_k = \frac{1}{2}mv^2$ $\quad$ $E_g = mgh$ $\quad$ $E_T = E_k + E_g$

$P = \frac{\Delta E}{\Delta t}$ $\quad$ $\Delta E = mc\Delta T$ $\quad$ $\%eff = \frac{E_{output}}{E_{input}} \times 100\%$

$\Delta E_{released} + \Delta E_{absorbed} = 0$