Formulae

\[ \nu = \frac{d}{t} \quad a = \frac{\nu_2 - \nu_1}{t} \quad \nu_2 = \nu_1 + at \quad \nu_2^2 = \nu_1^2 + 2ad \]

\[ d = \nu_1 t + \frac{1}{2} at^2 \quad \nu_x = \nu \cos \theta \quad A^2 + B^2 = C^2 \quad "SOH \ CAH \ TOA" \]

\[ F_{\text{net}} = ma \quad F_g = mg \quad F_f = \mu F_n \quad F_g = \frac{Gm_1m_2}{d^2} \]

\[ P = Wd \quad E_p = mgh \quad E_k = \frac{1}{2} mv^2 \quad P = \frac{W}{t} = \frac{E}{t} \]

efficiency = \frac{E_{\text{out}}}{E_{\text{in}}} \times 100\%

\[ E_T = E_p + E_k \quad Q = cm\Delta T \quad Q_{\text{gained}} = -Q_{\text{lost}} \]

\[ f = \frac{\# \text{cycles}}{t} \quad T = \frac{1}{f} \quad T = 2\pi \sqrt{\frac{f}{g}} \quad \nu = f\lambda \]

\[ \nu_2 = 332 + 0.59T \quad f_B = \left| f_1 - f_2 \right| \quad f_2 = f_1 \left( \frac{\nu}{\nu \pm \nu_{\text{vehicle}}} \right) \]

\[ I_\varphi = \frac{1}{4} \lambda_1^3 \lambda_2 \lambda_3 \lambda_4 \lambda_5 \lambda_6 \lambda_7 \lambda_8 \]

\[ I_\varphi = \frac{3}{4} \lambda_1^2 \lambda_2 \lambda_3 \lambda_4 \lambda_5 \lambda_6 \lambda_7 \lambda_8 \]

\[ L = L_1 + L_2 + L_3 \ldots \]

\[ \nu_T = \nu_1 + \nu_2 + \nu_3 \ldots \]

\[ V_T = V_1 + V_2 + V_3 \ldots \]

\[ R_T = R_1 + R_2 + R_3 \ldots \]

\[ q = ne \quad I = \frac{q}{t} \]

\[ V = \frac{E}{q} \quad V = IR \]

\[ \frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \ldots \]

Constants

\[ g = 9.81 \text{ m/s}^2 \quad G = 6.67 \times 10^{-11} \frac{\text{Nm}^2}{\text{kg}^2} \]

\[ e = 1.6 \times 10^{-19} \text{ C} \]