

Physics 122/121 – Formulas

$$v_x = \frac{x}{t}$$

$$v = \frac{2\pi r}{T}$$

$$F = \frac{kq_1q_2}{r^2}$$

$$q = Ne$$

$$v_{yf} = v_{yi} + at$$

$$T = \frac{1}{f}$$

$$E = \frac{F}{q_t}$$

$$y = v_{yi}t + \frac{1}{2}at^2$$

$$a_c = \frac{v^2}{r}$$

$$E = \frac{kq}{r^2}$$

$$v_{yf}^2 = v_{yi}^2 + 2ay$$

$$F_c = ma_c$$

$$V = \frac{W}{q} = \frac{E_Q}{q}$$

$$F_{net} = ma$$

$$v = \sqrt{gr\mu_s}$$

$$V = IR$$

$$W = mg$$

$$v = \sqrt{gr \tan \theta}$$

$$I = \frac{q}{t}$$

$$F_f = \mu N$$

$$\tau = rF \sin \theta$$

$$\left(\frac{T_a}{T_b}\right)^2 = \left(\frac{r_a}{r_b}\right)^3$$

$$R = \rho \frac{L}{A}$$

$$p = mv$$

$$E_T = \frac{1}{2}mv^2 + \frac{1}{2}kx^2$$

$$F = \frac{Gm_1m_2}{r^2}$$

$$P = IV$$

$$v = v_{\max} \sqrt{1 - \frac{x^2}{A^2}}$$

$$v = \sqrt{\frac{GM}{r}}$$

$$P = \frac{E}{t}$$

$$T = 2\pi \sqrt{\frac{m}{k}}$$

$$T = 2\pi \sqrt{\frac{r^3}{GM}}$$

$$R = R_1 + R_2 + \dots$$

$$T = 2\pi \sqrt{\frac{l}{g}}$$

$$g = \frac{GM}{r^2}$$

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$$

Constants

$$G = 6.67 \times 10^{-11} \frac{\text{Nm}^2}{\text{kg}^2}$$

$$e = 1.60 \times 10^{-19} \text{ C}$$

$$k = 9.0 \times 10^9 \frac{\text{Nm}^2}{\text{C}^2}$$