

PHYS 121 Quiz #1 Formula Sheet

$$g = 9.81 \text{ m/s}^2$$

$$m_e = 9.11 \times 10^{-31} \text{ kg}$$

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

$$v = v_0 + a_c \Delta t$$

$$v^2 = v_0^2 + 2a_c \Delta x$$

$$\vec{F}_{12} = \frac{k_e q_1 q_2}{r^2} \hat{r}_{12}$$

$$\vec{E}_q = \frac{1}{4\pi\epsilon_0} \frac{q}{r^2} \hat{r}$$

$$\vec{E}_{\text{ring}} = \frac{k_e Q z}{(r^2 + z^2)^{3/2}} \hat{k}$$

$$k_e = \frac{1}{4\pi\epsilon_0} = 8.99 \times 10^9 \text{ N m}^2/\text{C}^2$$

$$m_p = 1.67 \times 10^{-27} \text{ kg}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\Delta x = v_0 \Delta t + \frac{1}{2} a_c (\Delta t)^2$$

$$\omega = \frac{2\pi}{T} = \sqrt{\frac{g}{\ell}}$$

$$\vec{F}_e = q\vec{E}$$

$$E_{\text{line}} = \frac{|\lambda|}{2\pi\epsilon_0 r}$$