

# AP2 PREX #4 F.R.

Note Title

12/4/2015

$$a) W = \Delta K$$

$$qV = \frac{1}{2} m v^2$$

$$V = \frac{m v^2}{2q} = \frac{(1.67 \times 10^{-27})(3.1 \times 10^4)^2}{2(1.6 \times 10^{-19})}$$

$$\boxed{V = 5 \text{ V}}$$

$$b) Q = Nk \Rightarrow N = \frac{q_{\text{TOTAL}}}{e} = \frac{It}{e}$$

$$Q = \frac{It}{e} \left( \frac{1}{2} m v^2 \right)$$

$$= \frac{(2 \times 10^{-4})(60)}{1.6 \times 10^{-19}} \left( \frac{1}{2} (1.67 \times 10^{-27})(31,000)^2 \right)$$

$$\boxed{Q = 0.06 \text{ J}}$$

$$c) F_b = F_c \Rightarrow qvB = \frac{m v^2}{R}$$

$$B = \frac{m v}{qR} = \frac{(1.67 \times 10^{-27})(31,000)}{(1.6 \times 10^{-19})(.1)}$$

$$\boxed{B = 0.003 \text{ T}}$$

d) "-z", into P<sub>y</sub> (RHR)