

P #20

Ch 15 - pg 492

$$E = 300 \text{ N/C}$$

$$q_0 = 1.6 \times 10^{-19} \text{ C}$$

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

a) Find F : $E = \frac{F}{q_0}$ so $(300 \text{ N/C}) = \frac{F}{(1.6 \times 10^{-19} \text{ C})}$

$$F = 4.8 \times 10^{-17} \text{ N}$$

Find a : $F = m \cdot a$

$$\text{so } (4.8 \times 10^{-17} \text{ N}) = (9.11 \times 10^{-31} \text{ kg}) \cdot a$$

$$a = 5.27 \times 10^{13} \text{ m/s}^2$$

b) $V_0 = 0 \text{ m/s}$

$$t = 1.0 \times 10^{-8} \text{ sec}$$

$$a = 5.27 \times 10^{13} \text{ m/s}^2$$

$$V = V_0 + a \cdot t$$

$$= (0 \text{ m/s}) + (5.27 \times 10^{13} \text{ m/s}^2)(1.0 \times 10^{-8} \text{ sec})$$

$$V = 5.27 \times 10^5 \text{ m/s}$$