

Physics 2 - HW 1 Solution

Problem 1

(a)

$$E = \frac{F}{q} \Rightarrow F = eE$$

$$F = (40) (1.6 \times 10^{-19}) N$$

$$F = 6.4 \times 10^{-18} N$$

(b)

$$E_B = 20 \text{ N/C}$$

Problem 2

(a)

$$E = \frac{(9 \times 10^9) (94 \times 1.6 \times 10^{-19})}{(6.64 \times 10^{-15})^2}$$

$$E = 3.1 \times 10^{21} \text{ N/C}$$

(b) Radially outward.

Problem 3

$$a = 1.8 \times 10^9 m/s^2$$

(a) Magnitude

$$E = \frac{F}{q_0} = \frac{ma}{e}$$

$$E = \frac{(9.1 \times 10^{-31})(1.8 \times 10^9)}{(1.9 \times 10^{-19})}$$

$$E = 0.010 N/C$$

(b) West