

26. a. By using right hand rule, if we wrap our fingers in the direction from v to B, our thumb point opposite of force. So the charge of the particle.

b.
$$m = \frac{e r B}{v}$$

$$m = \frac{(1.6 \times 10^{-19})(0.52)(0.18)}{6 \times 10^6} = 1.17 \cdot 10^{-27}$$

$$m = 1.49 \text{ u}$$

$$\approx 1.5 \text{ u}$$

50. a. By using right hand rule, we find that both field are in the same direction in point A, while in point B they are in opposite direction. \therefore the magnitude of field in point A is greater.

b.
$$B_1 = \frac{4\pi \cdot 10^{-7} I_1}{2\pi \cdot 0.16} \quad B_2 = \frac{4\pi \cdot 10^{-7} I_2}{2\pi \cdot 0.16}$$

$$= \frac{4\pi \cdot 10^{-7} \cdot 6.2}{2\pi \cdot 0.16} \quad = \frac{4\pi \cdot 10^{-7} \cdot 4.5}{2\pi \cdot 0.16}$$

$$= 7.8 \cdot 10^{-6} \quad = 5.6 \cdot 10^{-6}$$

$$B_A = B_1 + B_2 = 13.4 \cdot 10^{-6} \text{ T}$$

$$B_B = B_1 - B_2 = 2.2 \cdot 10^{-6} \text{ T}$$

53. a.
$$\frac{F}{L} = \frac{\mu_0 I_1 I_2}{2\pi d}$$

$$\frac{F}{L} = \frac{4\pi \cdot 10^{-7} (2.75)(4.33)}{2\pi (0.0925)}$$

$$\frac{F}{L} = 2.57 \cdot 10^{-5}$$

b. \therefore The force of two wire form a action-reaction pair \therefore They are same

50. 0.2 and 0.4
 b. $|E| = N \left| \frac{d\phi}{dt} \right|$
 when the t at 0.1, 0.3 and 0.5, the graph have the biggest slope. So at these time the induced emf is the biggest.