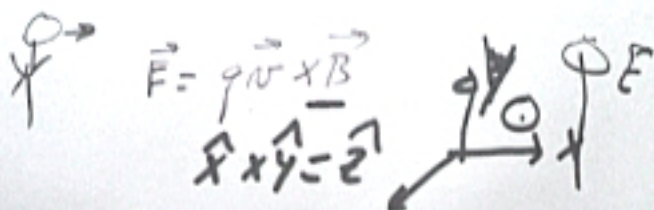
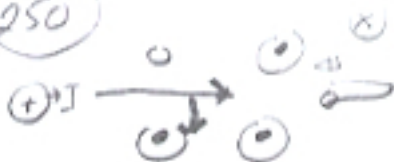
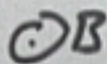
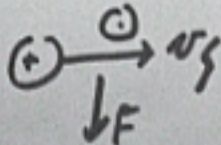
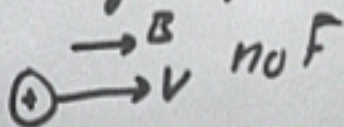
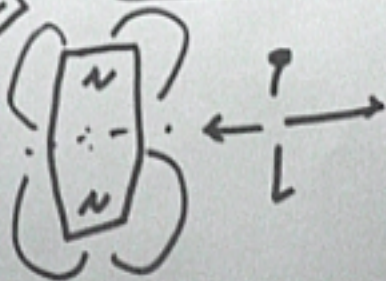


(250)



$$\vec{F} = q\vec{E} + q\vec{v} \times \vec{B}$$





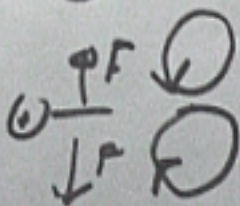
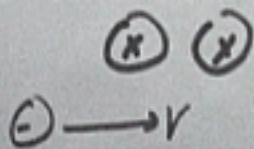
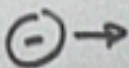
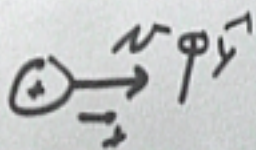
$$\textcircled{+} \quad \vec{v} = v_0 \hat{x}$$

$$\vec{B} = B_0 \hat{y} \quad I \vec{L}$$

$$\vec{F} = q \vec{v} \times \vec{B} = q N_0 B_0 \hat{z}$$

$$\vec{F} = m \vec{a} \quad m \frac{v^2}{R} = |\vec{F}|$$

$$R = \frac{m v^2}{|F|}$$

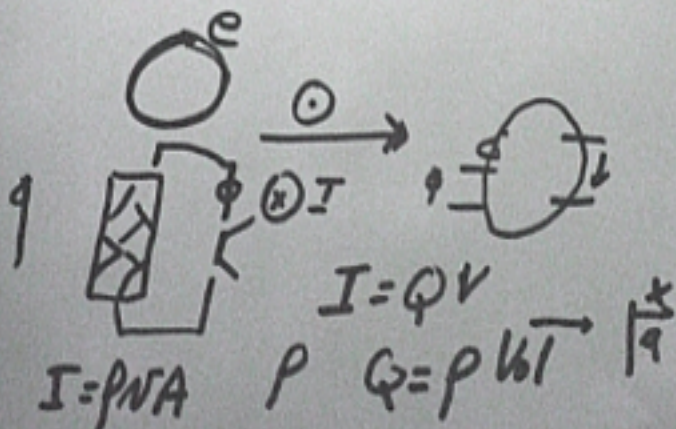


$\vec{F} = I \vec{L} \times \vec{B}$

$|\vec{A} \times \vec{B}| = |\vec{A}| |\vec{B}| \sin \theta$

$B = \frac{N}{Am}$

$1T = \frac{1N}{1A \cdot 1m}$



⊕

$$m_p \sim 1.7 \times 10^{-27} \text{ kg}$$

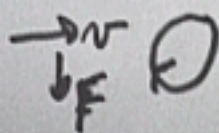
$$V = .01 \text{ C} = 3 \times 10^6 \frac{\text{m}}{\text{s}}$$

$$B = 10 \text{ T} \quad q = 1.6 \times 10^{-19} \text{ C}$$

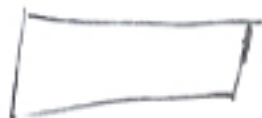
$$F = qv = m \frac{v^2}{R}$$

$$R = \frac{mv}{qB} = 3 \times 10^{-3} \text{ m}$$

B ⊙



$\vec{F} = q\vec{v}$
 $I = .35 \text{ A}$
 $.78 \text{ m}$



$\vec{F} = q\vec{v}$
 $\odot \quad \otimes \leftarrow \vec{B}$

$$F = qvNB$$

$$F = ILB$$

$$B = \frac{F}{qv}$$

$$B = \frac{F}{IL}$$

$$I = \frac{\Delta Q}{\Delta t}$$


$$= \frac{.01 \text{ N}}{(.35 \text{ A})(.78 \text{ m})} = .37 \text{ T}$$

$$I = \frac{F}{LB}$$

$$1 \text{ A} = \frac{1 \text{ N}}{1 \text{ m} \cdot 1 \text{ T}}$$



$$\vec{F} = I \vec{L} \times \vec{B}$$

$$\vec{F} = \sum_{\text{Segments}} I \vec{L}_i \times \vec{B}$$


$$= - \sum \vec{B} \times I \vec{L}_i$$

$$= - I \vec{B} \times \sum \vec{L}_i$$

$$\vec{D}_{isp} = \sum \vec{D}_i = \vec{0}$$

$$\Rightarrow \vec{F} = \vec{0}$$



I \odot

A hand-drawn diagram of a semi-circular current element. The current I flows counter-clockwise along the arc. The radius of the arc is labeled R . A green arrow below the arc indicates the direction of the magnetic field, labeled $2R$. A circled dot \odot is to the right of the arc.

$$\vec{F} = \int_0^\pi I R \sin\theta d\theta (\hat{\theta} \times \vec{B})$$

$$F = I(2R)B$$

↪ $-I(2R)B$

