SECOND CH5 LECTURE - Mon 11 Nov 02

Last week - $\vec{F} = I\vec{l} \times \vec{B}$ Lorentz force OOO, =

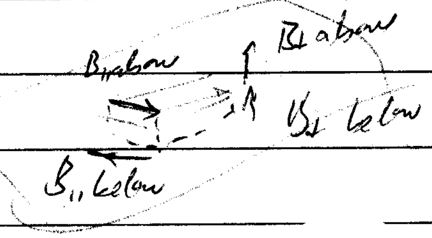
Ampere $\oint \vec{B} \cdot d\vec{l} = \mu_0 I \leftrightarrow \nabla \times \vec{B} = \mu_0 \vec{J}$

Check probs that calculate $I(r)$ from $\vec{J}$ or K
5.5, 5.13

Now find $B(r)$ due to these $I(r)$.

BC: p. 241 : $B_\perp$ = continuous

$\oint \vec{B} \cdot d\vec{l} = (B_{\parallel\,above} - B_{\parallel\,below})\,l = \mu_0 I = \mu_0 K l$



$\Delta \vec{B}_\parallel = \mu_0 \vec{K} \times \hat{n}$

Ch 7: $V = IR$
285 $\vec{E} = \vec{J}\eta = \vec{J}\rho \Rightarrow \vec{J} = \sigma\vec{E}$

Electromotive Force
$\mathcal{E} = \oint \frac{\vec{F}}{q} \cdot d\vec{l}$
$V = \oint -\frac{q\vec{E}}{q} \cdot d\vec{l} = \oint \vec{E} \cdot d\vec{l}$
= potential p. 293

If $\vec{F} = q\vec{v} \times \vec{B}$ then p. 2

$\mathcal{E} = \int vB\,dl = vBh = Bh\frac{dx}{dt} = B\frac{dA}{dt} = \frac{d}{d}$