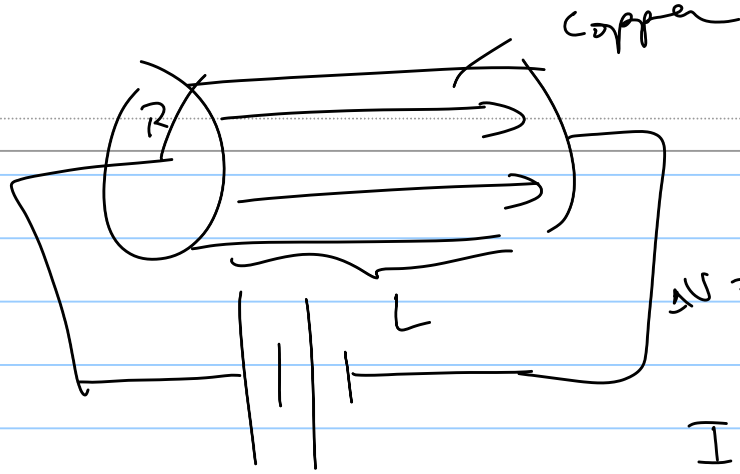
Note Title 3/30/2009



$$\Delta V = \int \vec{E}\cdot d\vec{\ell} = \frac{J}{\sigma} L$$

$$I = \int \underbrace{\sigma E}_{J}\, da = \underbrace{\sigma E}_{J} A$$

$$V_0 = I R$$

Principles! $\vec{J} = \sigma \vec{E}$

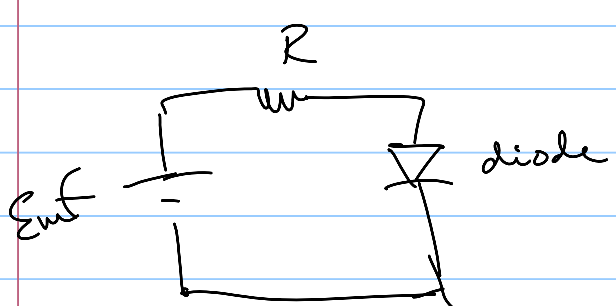
$$V = -\int \vec{E}\cdot d\vec{\ell}$$

$$I = \int \vec{J}\cdot d\vec{a}$$

$\vec{\nabla}\cdot\vec{E} = 0 \Rightarrow J$ uniform

$$J = \frac{\sigma V}{L} = \frac{I}{A}$$

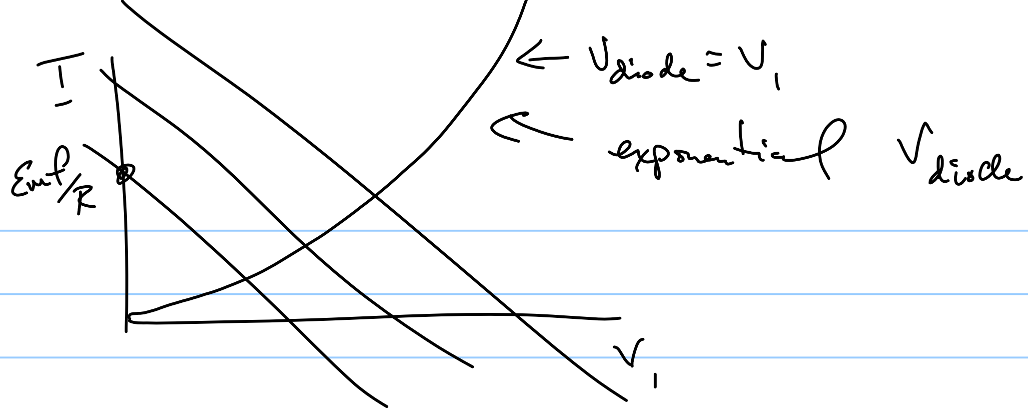
$$V = \underbrace{\frac{L}{A\sigma}}_{R} I$$



$$Emf - IR - V_{diode} = 0$$

$$\underbrace{Emf - IR}_{V_1} = \underbrace{V_{diode}}_{V_1}$$

$$V_1 = Emf - IR$$



LOAD LINE ANALYSIS

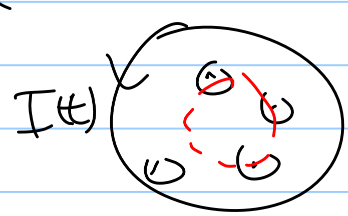
Faradays law

$$\mathcal{E}mf = -\frac{d\Phi_B}{dt}$$

$$=$$

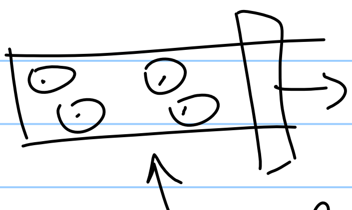
$$\oint \vec{E} \cdot d\vec{l} = -\frac{d}{dt}\int \vec{B} \cdot d\vec{a}$$

Solenoid

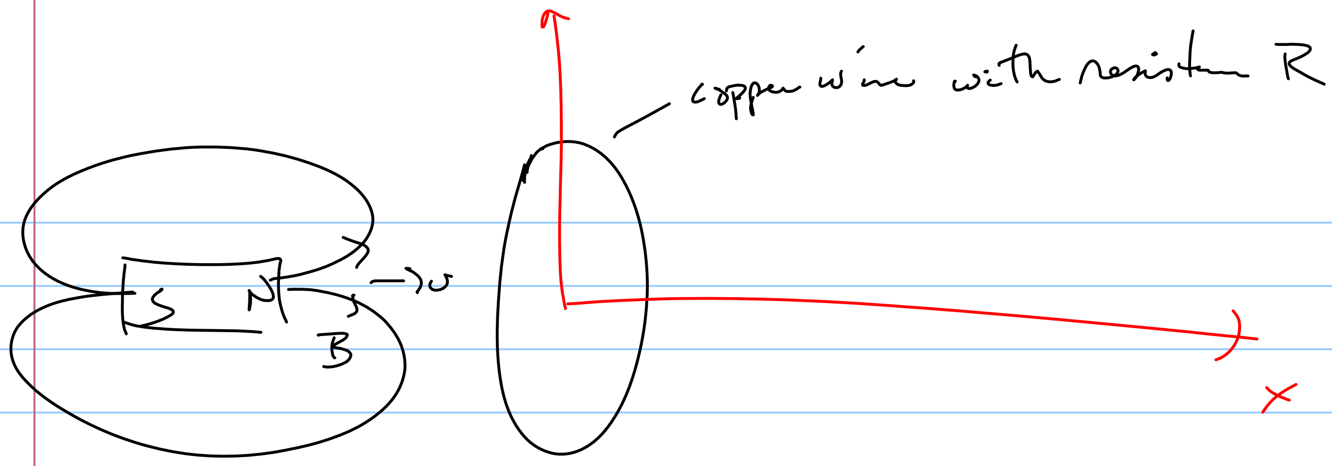


$$\int \vec{\nabla} \times \vec{E} \cdot d\vec{a} = \int -\frac{\partial \vec{B}}{\partial t} \cdot d\vec{a}$$

$$\vec{\nabla} \times \vec{E} = -\frac{\partial \vec{B}}{\partial t}$$ ← changing B generates $\vec{E}$



no changing B



Principle $\mathcal{E}mf = -\frac{d\Phi_B}{dt}$ $V = IR$

Method Φ_B