Ley Integral de Ampère

$$\oint \vec{B} \cdot d\vec{l} = \mu_0 I_{\text{enc}}$$

$$\vec{\nabla} \cdot \vec{E} = \frac{\rho}{\epsilon_0} \qquad \vec{\nabla} \cdot \vec{B} = 0$$

$$\vec{\nabla}\times\vec{E} = -\frac{\partial\vec{B}}{\partial t} \qquad \vec{\nabla}\times\vec{B} = \mu_0\vec{J}+\mu_0\epsilon_0\frac{\partial\vec{E}}{\partial t}$$

$$\vec{\nabla}\times\vec{B} = \mu_0\vec{J}+\mu_0\epsilon_0\frac{\partial\vec{E}}{\partial t} \rightarrow \oint \vec{B}\cdot d\vec{l} = \mu_0 I_{\text{enc}}$$

$$B = \mu_0\mu_r\frac{NI}{L}$$

$$= NI$$

$$= \frac{l_{carac}}{\mu_0\mu_r S_{eff}}$$

$$= \mathcal{F}/\mathcal{R}$$

$$\mathcal{R}_\phi = \frac{(l_c + l_{fe}) - x}{\mu_0 * S_{disp}}$$

$$\mathcal{R}_{fe} = \frac{l_{fe}}{\mu_0 \mu_r * S_{fe}}$$

$$\mathcal{R}_{disp\ c} = \frac{l_c}{\mu_0 * S_{disp}}$$

$$\mathcal{R}_{aire\ c} = \frac{l_c - x}{\mu_0 * S_c}$$

$$\sum \mathcal{R} = \mathcal{R}_\phi + \mathcal{R}_{fe} + \mathcal{R}_{disp\ c} + \mathcal{R}_{aire\ c} \rightarrow \phi = \frac{NI}{\sum \mathcal{R}}$$

$$B_T = \frac{\phi}{S_T} \rightarrow F_T = \frac{1}{2} \frac{B_T^2 * S_T}{\mu_0}$$