

Formulário 4 Física Geral 3:

$$\begin{aligned}
 L &= \frac{N\Phi_B}{i} \quad L = \mu_0 n^2 A l \quad C = \frac{\epsilon_0 A}{l} \quad L = \frac{\mu_0 N^2 h}{2\pi} \ln \frac{b}{a} \quad \epsilon_L = -L \frac{di}{dt} \quad i = \frac{\mathcal{E}}{R} (1 - e^{-Rt/L}) \quad \tau_L = \frac{L}{R} \\
 i &= \frac{\mathcal{E}}{R} e^{-Rt/L} = i_0 e^{-Rt/L} \quad U_B = \frac{1}{2} Li^2 \quad u_B = \frac{B^2}{2\mu_0} \quad U_E = \frac{q^2}{2C} \quad q = Q \cos(\omega t + \phi) \quad \omega = \frac{1}{\sqrt{LC}} \\
 q &= Q e^{-Rt/2L} \cos(\omega' t + \phi) \quad V_L = I_L X_L \quad e = 1.60 \times 10^{-19} \text{ C} \\
 \omega' &= \sqrt{\omega^2 - (R/2L)^2} \quad \omega_0 = \frac{1}{\sqrt{LC}} \quad \epsilon = \epsilon_m \sin \omega t \quad \mu = 10^{-6} \quad n = 10^9 \quad i = I \sin(\omega t - \phi) \\
 \mathcal{E} &= -N \frac{d\Phi_B}{dt} \quad X_C = \frac{1}{\omega_d C} \quad i_C = \frac{V_C}{X_C} \sin(\omega t + 90^\circ) \quad V_C = I_C X_C \quad X_L = \omega L \quad i_L = I_L \sin(\omega t - 90^\circ) \\
 i_R &= I_R \sin \omega t \quad \mathcal{E}_m^2 = V_R^2 + (V_L - V_C)^2 \quad I = \frac{\mathcal{E}_m}{Z} \quad f = 10^{-15} \quad \tan \phi = \frac{V_L - V_C}{V_R} \\
 Z &= \sqrt{R^2 + (X_L - X_C)^2} \quad P_{\text{méd}} = RI_{\text{rms}}^2 \quad \frac{I}{\sqrt{2}} = I_{\text{rms}} \quad \Phi_B = \int \vec{B} \cdot d\vec{A} \quad I_{\text{rms}} = \frac{\mathcal{E}_{\text{rms}}}{Z} \quad \oint \vec{E} \cdot d\vec{s} = -\frac{d\Phi_B}{dt} \\
 p &= 10^{-12} \quad P_{\text{méd}} = \epsilon_{\text{rms}} I_{\text{rms}} \cos \phi \quad V_s = V_p \frac{N_s}{N_p} \quad I_s = I_p \frac{N_p}{N_s} \quad \oint \vec{E} \cdot d\vec{A} = q_{\text{enc}} / \epsilon_0 \quad \oint \vec{B} \cdot d\vec{A} = 0 \\
 \oint \vec{B} \cdot d\vec{s} &= \mu_0 \epsilon_0 \frac{d\Phi_E}{dt} + \mu_0 i_{\text{enc}} \quad \mu_0 = 4\pi \times 10^{-7} \text{ T} \cdot \text{m/A ou H/m} \quad \oint \vec{B} \cdot d\vec{s} = \mu_0 i_{\text{enc}} \quad B = \mu_0 i n \\
 \epsilon_0 &= 8.85 \times 10^{-12} \text{ C}^2/\text{Nm}^2
 \end{aligned}$$