

# Formulario electromagnetismo

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1.  $\vec{F}_B = q\vec{v} \times \vec{B}$ .
2.  $F_B = |q|v_\perp B = |q|vB \sin(\phi)$ .
3.  $F_B = I \int_{P_i}^{P_f} d\vec{L} \times \vec{B}$ .
4.  $F_B = I\vec{L} \times \vec{B} = IlB_\perp = IlB \sin(\phi)$ .
5.  $\vec{L} = P_f - P_i$ .
6.  $F_E = q\vec{E}$ .
7.  $\vec{F}_T = q(\vec{E} + \vec{v} \times \vec{B})$ .
8.  $R = \frac{mv}{|q|B}$ .
9.  $f = \frac{\omega}{2\pi} = \frac{qB}{2\pi m}$ .
10.  $\omega = \frac{|q|B}{m}$ .
11.  $v = \frac{E}{B} = \frac{d}{t}$ .
12.  $DV = -\vec{E} \cdot d$ .
13.  $T_r = I\vec{A} \times \vec{B} = IAB \sin(\phi)$ .
14.  $\mu = I\vec{A} = nI\vec{A}$ .
15.  $\vec{B} = \frac{\mu_0}{4\pi} \left( \frac{q\vec{v} \times \hat{r}}{r^2} \right)$ .
16.  $B = \frac{\mu_0}{4\pi} \left( \frac{|q|v \sin(\phi)}{r^2} \right)$ .
17.  $d\vec{B} = \frac{\mu_0 I}{4\pi} \left( \frac{d\vec{L} \times \hat{r}}{r^2} \right)$ .
18.  $dB = \frac{\mu_0 I}{4\pi} \left( \frac{dl \sin(\phi)}{r^2} \right)$ .
19.  $\vec{B} = \frac{\mu_0 I}{4\pi a} (\cos \theta_1 - \cos \theta_2) \hat{k}$ .
20.  $\vec{B} = \frac{\mu_0 I}{2\pi r}$ .
21.  $\vec{B} = \frac{\mu_0 I(\theta)}{4\pi r}$ ,  $\theta$  rad.
22.  $\vec{B} = \frac{\mu_0 I a^2}{2(x^2 + a^2)^{\frac{3}{2}}}$ ,  $a = r$ ,  
 $x = \text{dist.}$
23.  $B = \frac{\mu_0 I}{2r}$ ,  $\theta = 2\pi$ .
24.  $\vec{B} = \frac{\mu_0 I}{2r} (\cos \theta) \hat{i}$ ,  $\theta$  rad.
25.  $\phi_B = \int_S \vec{B} \cdot d\vec{A} = 0$ , SS.
26.  $C = \int_c \vec{B} \cdot d\vec{l} = \mu_0 I_{enc}$ .
27.  $C = \int_c \vec{B} \cdot d\vec{l} = \frac{\mu_0 I r}{2\pi R^2}$ ,  
 $r < R$ .
28.  $C = \int_c \vec{B} \cdot d\vec{l} = \mu_0 n I l$ ,  
 $B = \mu_0 n I$ .