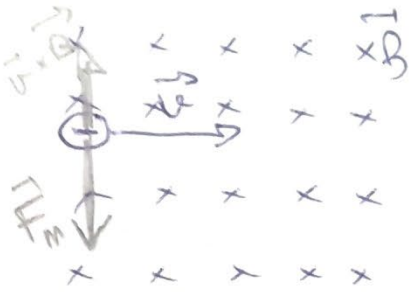
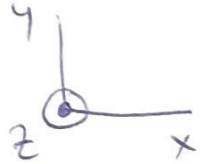
Xuio 97



$\vec{v} = 1.10^7 \vec{i} \left(\frac{m}{s}\right)$

$\vec{B} = 2.10^4 (-\vec{k})\ T$



a) $\vec{F}_m = q\,\vec{v} \wedge \vec{B}$

1ª forma:

$F_m = |q| \cdot v \cdot B \cdot \operatorname{sen}\theta = 1{,}6.10^{-19} \cdot 10^7 \cdot 2.10^4 \cdot 1 = \boxed{3{,}2.10^{-8}\ N}$

$\perp \vec{v}$ e a $\vec{B}$

$\boxed{\vec{F}_m = -3{,}2.10^{-8}\,\vec{j}\ N}$

2ª forma

$\vec{F}_m = q\,\vec{v} \times \vec{B} = -1{,}6.10^{-19} \cdot 1.10^7 \vec{i} \times 2.10^4 (-\vec{k}) =$

$= 3{,}2.10^{-8} (\vec{i} \times \vec{k}) = \boxed{-3{,}2.10^{-8}\,\vec{j}\ N}$

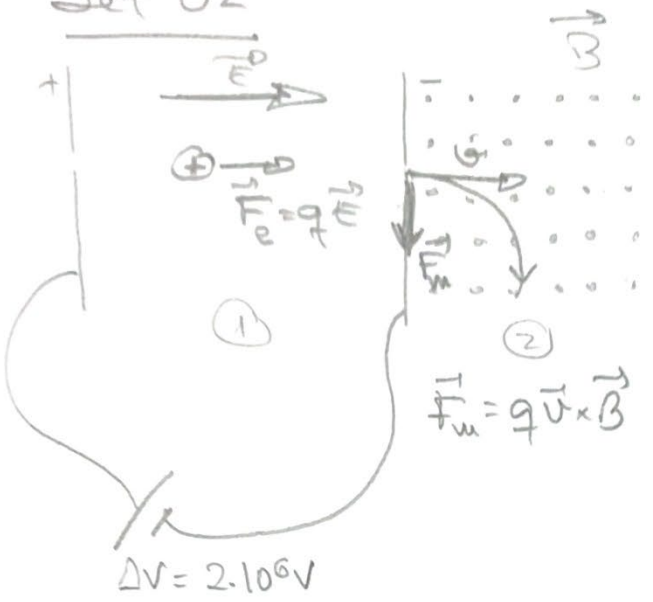
$\vec{i} \times \vec{j} = \vec{k}$
$\vec{j} \times \vec{k} = \vec{i}$
$\vec{k} \times \vec{i} = \vec{j}$

$\vec{i} \times \vec{j} = -\vec{j} \times \vec{i}$

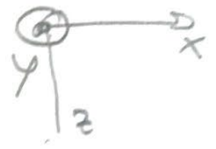
b) $R = \dfrac{m \cdot v}{|q| B \operatorname{sen}\theta}$

$R =$

Set 02



$\vec{f}_m = q\vec{v} \times \vec{B}$



$\vec{B} = 0{,}2\ \vec{j}\ T$

$\vec{v} = v\ \vec{i}$

$\Delta V = 2 \cdot 10^6 V$

a) $R = \dfrac{m \cdot v}{q B \sin\theta}$ (1)

① $F_{m+} = F_{m-}$

ou $\Delta E_p = -\Delta E_c$

$|q \cdot \Delta V| = \frac{1}{2} m v^2$

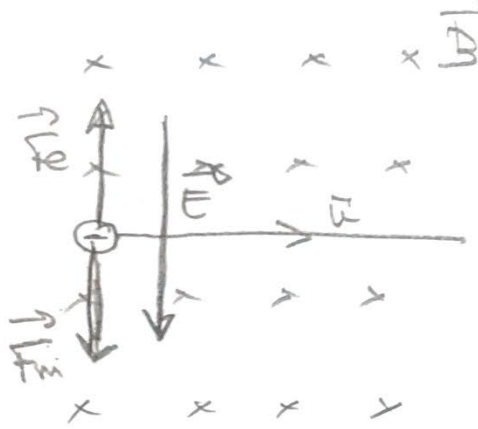
$v = \sqrt{\dfrac{|2q\Delta V|}{m}} =$

Subst en (1): $R =$

b) $f = \dfrac{v}{2\pi R} =$

Xuxo 08

a)



Dir. ⊥ $\vec{v}$ e a $\vec{B}$

Sentido oposto ao $\vec{F_e}$

e igual à $\vec{F_m}$

pois $\vec{F_e} = q\vec{E}$ e $q < 0$

1ª forma Fundamentada

$\Sigma \vec{F} = 0$

$\vec{F_e} + \vec{F_m} = 0$

$F_e = F_m$

$|q|E = |q|vB\sin\theta$

$E = vB = 1{,}88 \cdot 10^7 \cdot 1{,}79$

$$\boxed{E = 3{,}37 \cdot 10^7 \ \frac{N}{C}}$$

2ª forma Analítica

$\Sigma \vec{F} = 0$

$\vec{F_e} + \vec{F_m} = 0$

$q\vec{E} + q\vec{v} \times \vec{B} = 0$

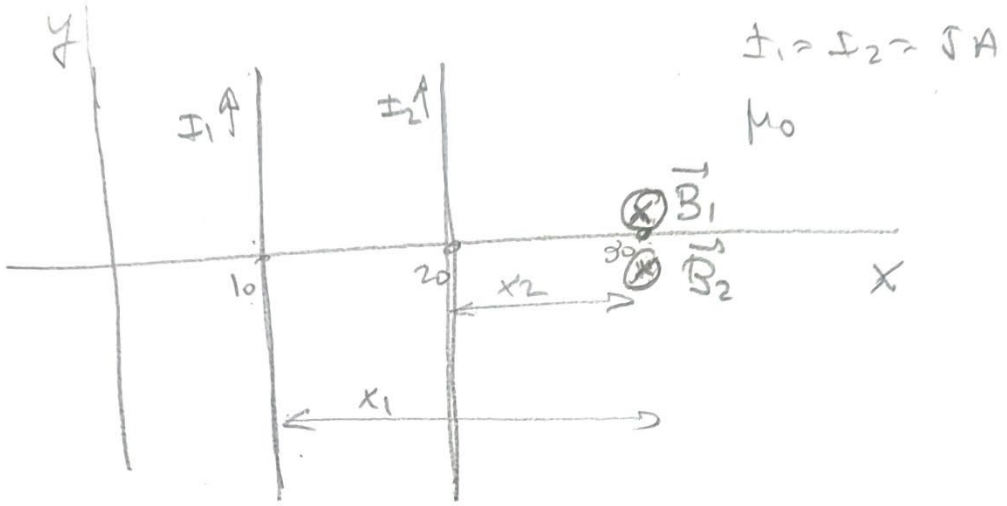
$\vec{E} = -\vec{v} \times \vec{B}$

$\vec{E} = -1{,}88 \cdot 10^7 \vec{j} \times 1{,}79(-\vec{k})$

$$\boxed{\vec{E} = -3{,}37 \cdot 10^7 \vec{j} \ \frac{N}{C}}$$

*

Xunio 09



a)

b) $B_T = B_1 + B_2$

$B_1 = \frac{\mu_0 I_1}{2\pi x_1} = \frac{4\pi \cdot 10^{-7} \cdot 5}{2\pi \cdot 0{,}2} =$

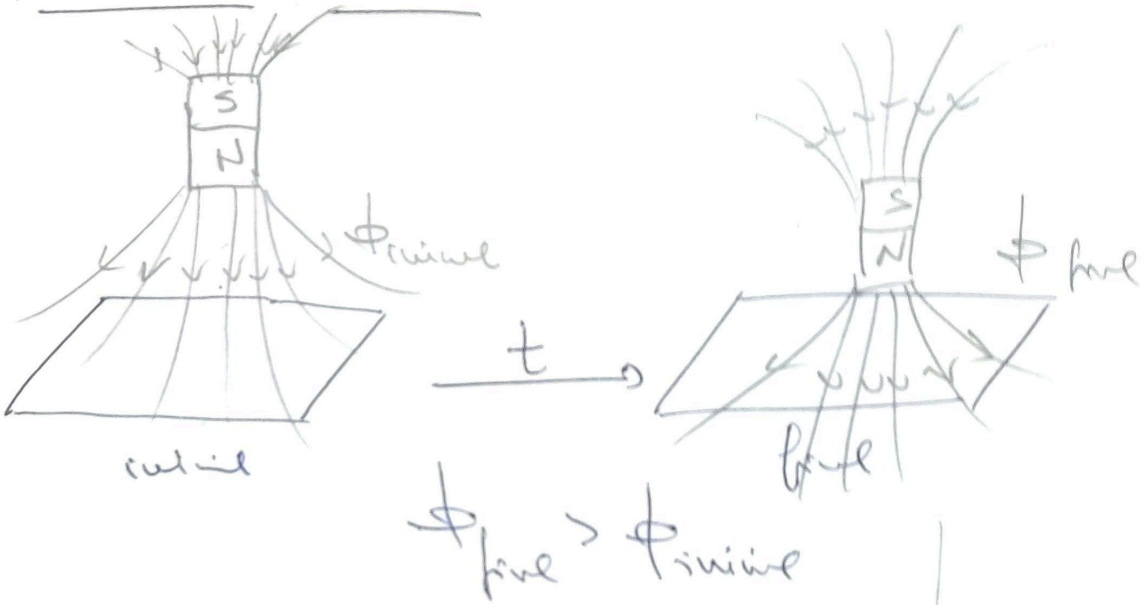
$B_2 = \frac{\mu_0 I_2}{2\pi x_2} = \frac{4\pi \cdot 10^{-7} \cdot 5}{2\pi \cdot 0{,}1} =$

$\Big\} \; B_T = 1{,}5 \cdot 10^{-5}\,T$

$$\boxed{\vec{B}_T = -1{,}5 \cdot 10^{-5}\,\vec{k}\,T}$$

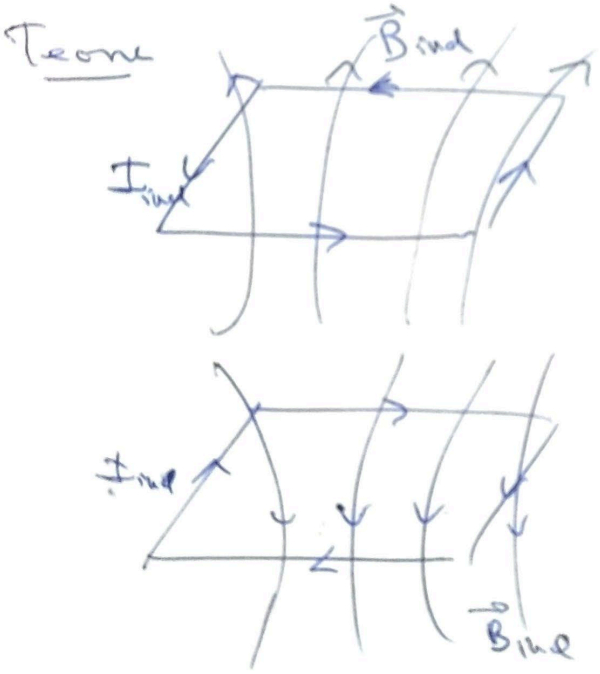
c)

Xuño 2002 - Cuestión

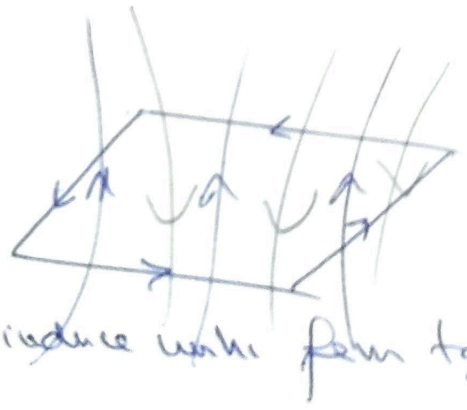


$\phi_{final} > \phi_{inicial}$

Teoría



$B_{ind} \propto I_{ind}$



Como ↑ flujo debido a que se acerca o imán, a espira (Lei Faraday - Lenz) induce unha fem tq

$$\varepsilon_{ind} = -\frac{d\phi_m}{dt}$$

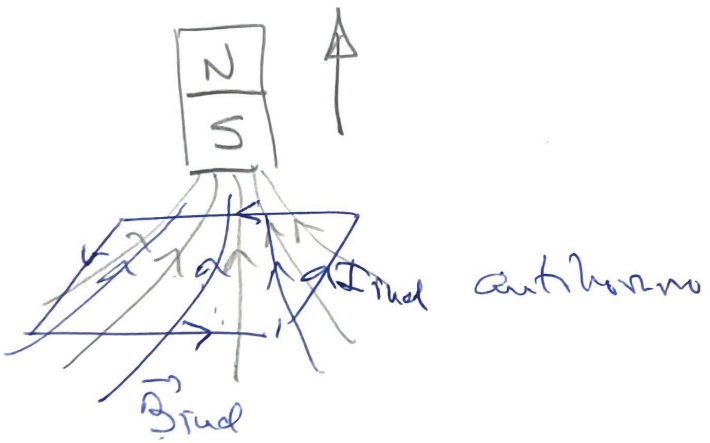
$I_{ind} = \frac{\mathcal{E}_{ind}}{R}$ é a corrente induzida

~~Que contraria~~ dá lugar a um C.M. induzido que contraverte o cambio de fluxo.

$B_{ind} \propto I_{ind}$

Como en este caso temos un ↑ fluxo, a corrente induzida terá en sentido antihorario visto desde arriba. (regra mano derecha)

Outro exemplo



Outro