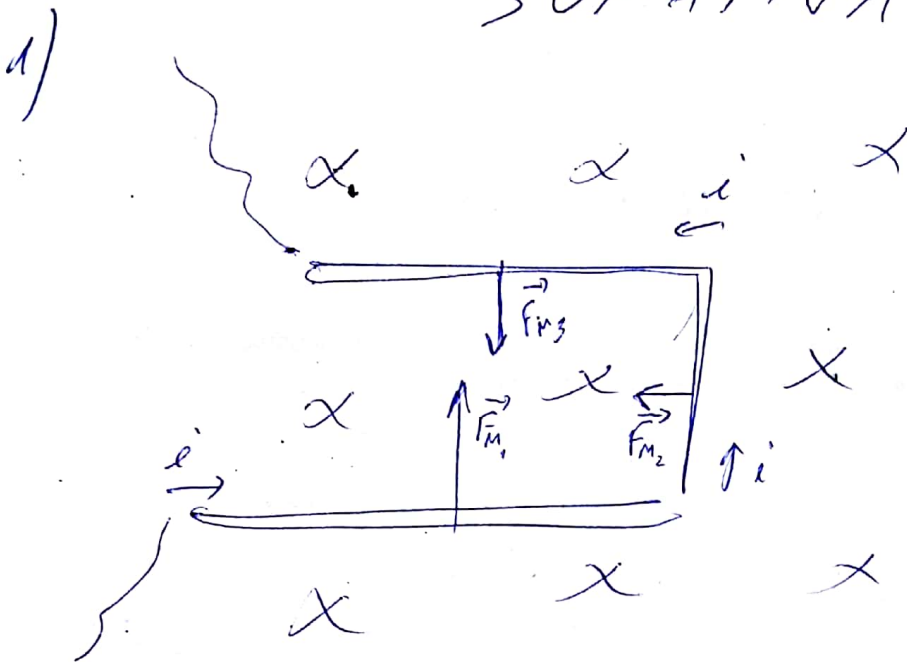


# SUMATIVA



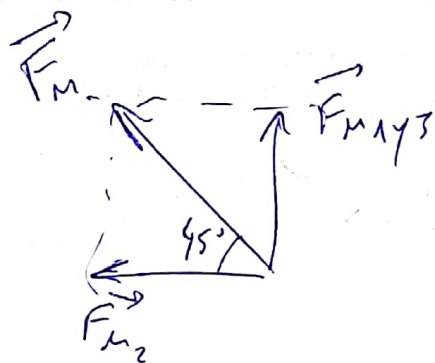
$$F_{M_1} = i \cdot \Delta l \cdot B \cdot \sin(\alpha) = 4A \cdot 0,30m \cdot 5,0 \times 10^{-5} T \cdot \sin(90)$$

$$= 6,0 \times 10^{-5} N$$

$$F_{M_2} = 4A \cdot 0,10m \cdot 5,0 \times 10^{-5} T \cdot \sin(90) = 2,0 \times 10^{-5} N$$

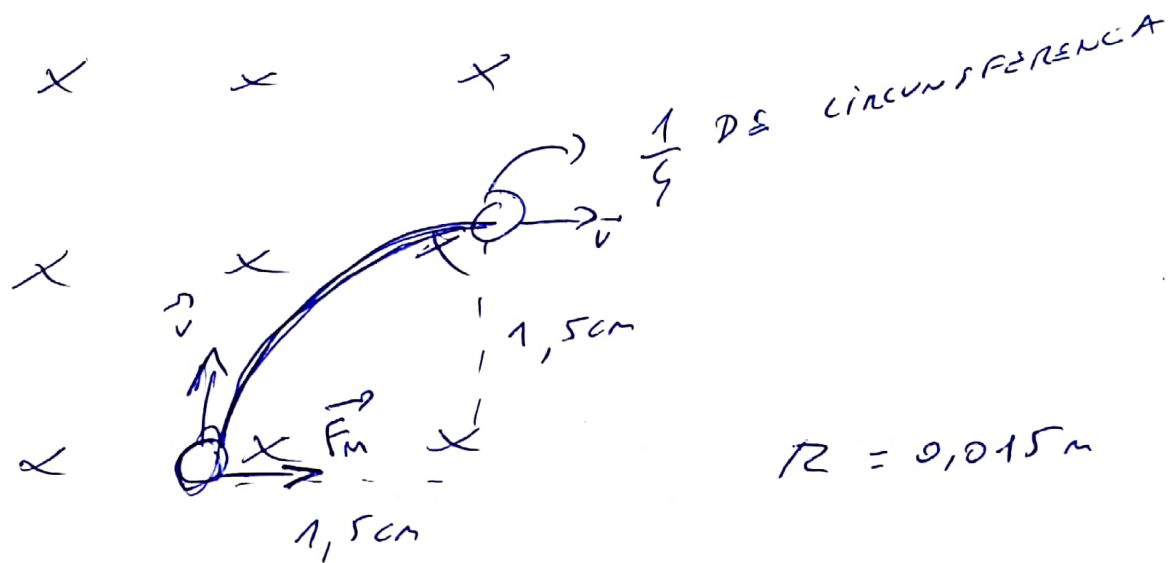
$$F_{M_3} = 4A \cdot 0,20m \cdot 5,0 \times 10^{-5} T \cdot \sin(90) = 4,0 \times 10^{-5} N$$

$$F_{M_{123}} = 6,0 \times 10^{-5} N - 4,0 \times 10^{-5} N = 2,0 \times 10^{-5} N$$



$$F_M = \sqrt{(2,0 \times 10^{-5})^2 + (2,0 \times 10^{-5})^2} = \boxed{2,8 \times 10^{-5} N}$$

$$2) \quad m = 2,0 \times 10^{-15} \text{ kg} \quad B = 0,20 \text{ T} \quad v = 6,0 \times 10^6 \frac{\text{m}}{\text{s}}$$



a)

$$R = \frac{mv}{|q| \cdot B} \Rightarrow |q| = \frac{mv}{R \cdot B} = \boxed{4,0 \times 10^{-6} \text{ C}}$$

Y EL SIGNO DE LA CARGA ES NEGATIVO  
ESTO SE COMPROBABA USANDO LA RMI.

$$b) \quad F_M = |q| \cdot v \cdot B \cdot \sin(90)$$

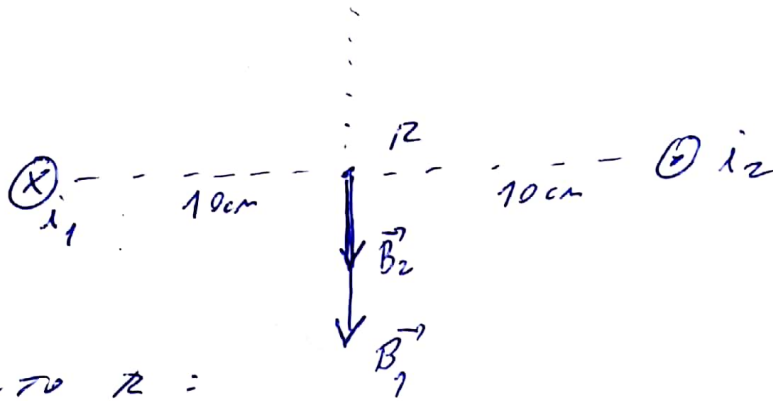
$$F_M = 4 \times 10^{-6} \text{ C} \cdot 6,0 \times 10^6 \frac{\text{m}}{\text{s}} \cdot 0,20 \text{ T} \cdot \sin(90)$$

$$\boxed{F_M = 4,8 \text{ N}}$$

$$c) \quad \text{tiempo} = \frac{T}{4} = \frac{1,6 \times 10^{-8} \text{ s}}{4} = \boxed{4 \times 10^{-9} \text{ s}}$$

$$(*) \quad T = \frac{2\pi R}{v} = 1,6 \times 10^{-8} \text{ s}$$

$$3) \quad i_1 = 4,0 A \quad i_2 = 3,0 A \quad d = 10 \text{ cm}$$



EN EL PUNTO  $R$  :

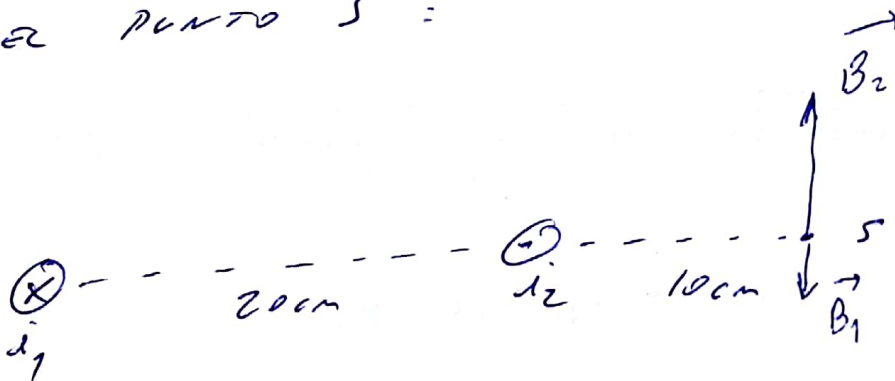
$$B_1 = \frac{K i_1}{d} = \frac{2 \times 10^{-7} \frac{\text{Tm}}{\text{A}} \cdot 4,0 A}{0,10 \text{ m}} = 8,0 \times 10^{-6} \text{ T}$$

$$B_2 = \frac{K i_2}{d} = \frac{2 \times 10^{-7} \frac{\text{Tm}}{\text{A}} \cdot 3 A}{0,10 \text{ m}} = 6,0 \times 10^{-6} \text{ T}$$

$$B_{\text{neto}} = 6,0 \times 10^{-6} \text{ T} + 8,0 \times 10^{-6} \text{ T} = \boxed{1,4 \times 10^{-5} \text{ T}}$$

Vertical y hacia abajo.

EN EL PUNTO  $S$  :



$$B_1 = \frac{K i_1}{d} = \frac{2 \times 10^{-7} \frac{\text{Tm}}{\text{A}} \cdot 4,0 A}{0,30 \text{ m}} = 2,7 \times 10^{-6} \text{ T}$$

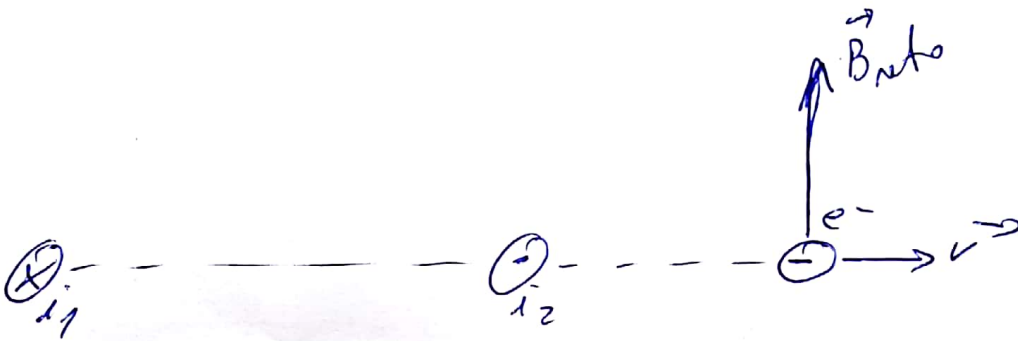
$$B_2 = \frac{K i_2}{d} = 6,0 \times 10^{-6} \text{ T}$$

$$B_{\text{neto}} = 6,0 \times 10^{-6} \text{ T} - 2,7 \times 10^{-6} \text{ T}$$

$$B_{\text{neto}} = 3,3 \times 10^{-6} \text{ T}$$

vertical y con sentido hacia arriba.

b)



$$F_m = |q| \cdot v \cdot B \cdot \sin(\alpha)$$

$$F_m = 1,6 \times 10^{-19} \text{ C} \cdot 3,0 \times 10^5 \frac{\text{m}}{\text{s}} \cdot 3,3 \times 10^{-6} \text{ T} \cdot \sin(90)$$

$$F_m = 1,6 \times 10^{-19} \text{ N} \quad (\otimes)$$

LA MANO IZQ INDICA SALIENTE PERO  
COMO LA CARGA ES NEGATIVA

$\Rightarrow$  LA RESPUESTA ES  $(\otimes)$

— X —