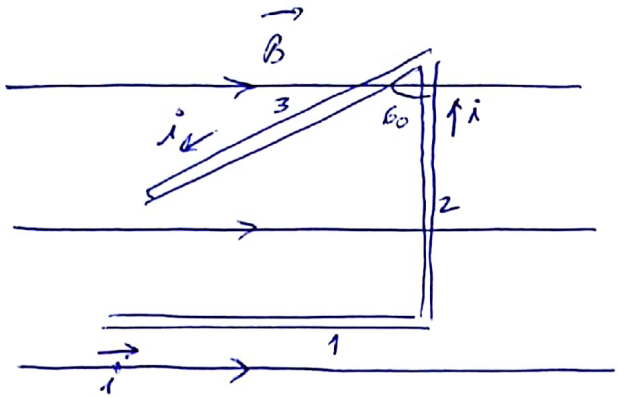
F_m SOBRE CONDUCTORES – SOLUCIONES

1)



$F_{m_1} = i \cdot \Delta l \cdot B \cdot \text{sen}(0) = \boxed{0\,N}$

$F_{m_2} = 3A \cdot 0{,}20m \cdot 2{,}0\times10^{-3}T \cdot \text{sen}(90) = \boxed{1{,}2\times10^{-3}\,T\ \otimes}$

$F_{m_3} = 3A \cdot 0{,}20m \cdot 2{,}0\times10^{-3}T \cdot \text{sen}(120) = \boxed{1{,}0\times10^{-3}T\ \odot}$

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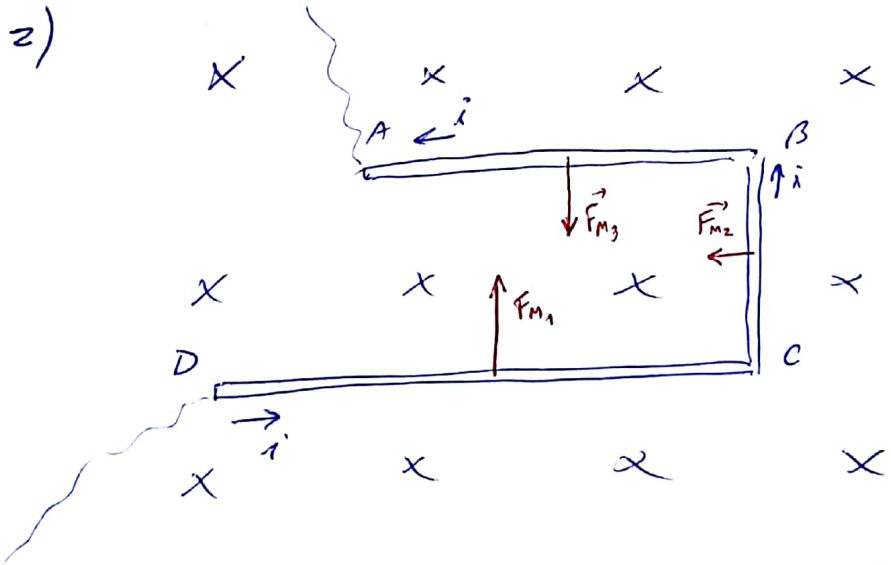
2)



(1) $\overrightarrow{DC}$: $F_m = 4{,}0A \cdot 0{,}30m \cdot 2{,}0\times10^{-3}T \cdot \text{sen}(90) = 2{,}4\times10^{-3}N$

(2) $\overrightarrow{CB}$: $F_m = 4{,}0A \cdot 0{,}10m \cdot 2{,}0\times10^{-3}T \cdot \text{sen}(90) = 8{,}0\times10^{-4}N$

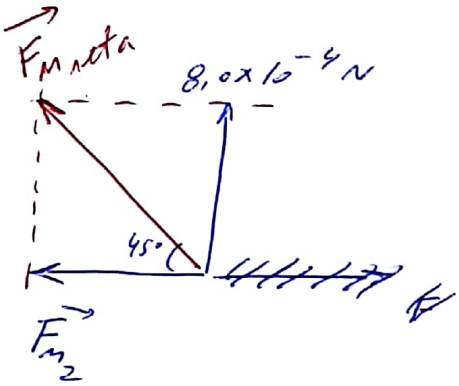
(3) $\overrightarrow{BA}$: $F_m = 4{,}0A \cdot 0{,}20m \cdot 2{,}0\times10^{-3}T \cdot \text{sen}(90) = 1{,}6\times10^{-3}N$

$$\vec{F}_{M_{neta}} = \vec{F}_{M_1} + \vec{F}_{M_2} + \vec{F}_{M_3}$$

$\vec{F}_{M_1}$ y $\vec{F}_{M_3}$ tienen sentidos contrarios.

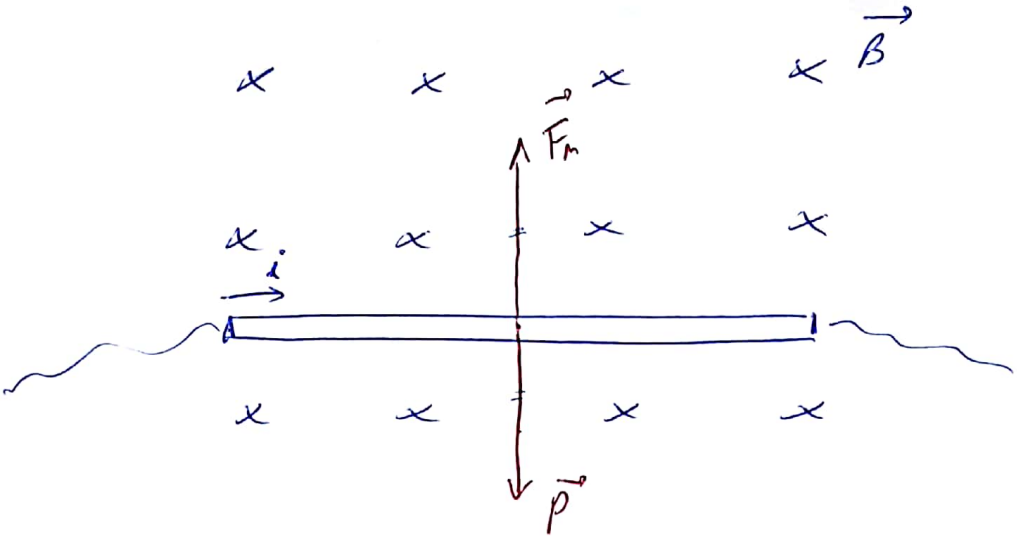
LA RESULTANTE DE ESTAS DOS DA $8,0 \times 10^{-4} N$ (↑)

LUEGO :



$$F_{M_{neta}} = \sqrt{(8 \times 10^{-4})^2 + (8 \times 10^{-4})^2} = \boxed{11 \times 10^{-3} N}$$

3)



$l = 30cm$

$B = 0,10\ T$

$m = 20\ gramos.$

CONDUCTOR EN REPOSO $\Rightarrow$ $F_{neta} = 0 \Rightarrow F_m = P$

$$P = m \cdot g = 0,020\ kg \cdot 10\ \frac{m}{s^2} = 0,20\ N$$

$$F_m = i \cdot \Delta l \cdot B \cdot \operatorname{Sen}(\alpha)$$

$$0,20\ N = i \cdot 0,30m \cdot 0,10\ T \cdot \underbrace{\operatorname{Sen}(90)}_{1}$$

$$\frac{0,20\ N}{0,30m \cdot 0,10\ T} = i$$

$$\boxed{6,7A = i}$$

USANDO LA RMI PODEMOS SABER QUE LA CORRIENTE SE DESPLAZA HACIA LA DERECHA.

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