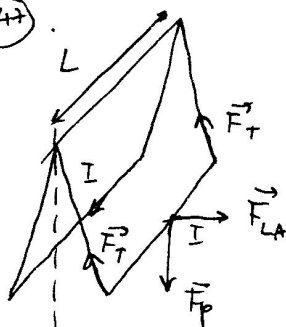


11.47

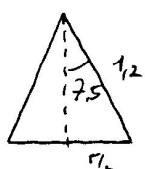


Forces:

$$\begin{cases} F_p = m \cdot g = 0,05 \cdot L \cdot g & (\text{pesanteur}) \\ F_{LA} = I \ell B & (\text{Laplace}) = I \cdot L \cdot \frac{\mu_0 I}{2\pi \cdot 2,4 \sin 7,5} \\ F_T = 0 & (\text{tension}) \end{cases}$$

B, champ dû au courant dans l'autre fil ..

$$B = \frac{\mu_0 I}{2\pi r}$$



$$\sin 7,5 = \frac{I}{2,4 \cdot L}$$

$$\Rightarrow r = 2,4 \sin 7,5$$

$$\Rightarrow B = \frac{\mu_0 I}{2\pi \cdot 2,4 \sin 7,5}$$

Résolution:

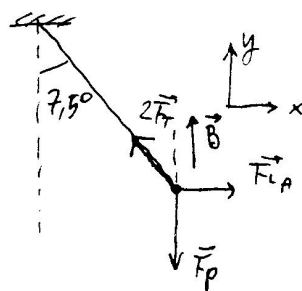
$$2F_T \sin 7,5 = F_{LA} = \frac{\mu_0 I^2 L}{4,8\pi \sin 7,5} \quad (1)$$

$$2F_T \cos 7,5 = 0,05 L g \quad (2)$$

$$\Rightarrow \frac{(1)}{(2)} : \tan 7,5 = \frac{\mu_0 I^2 L}{4,8 \cdot \pi \cdot \sin 7,5 \cdot 0,05 L g}$$

$$\Rightarrow I = \left(\frac{\tan(7,5) \cdot \sin(7,5) \cdot 4,8 \cdot \pi \cdot 0,05 \cdot g}{\mu_0} \right)^{1/2} \approx \underline{\underline{318 A}}$$

Vu de face, un seul fil:



Dynamique:

$$2\vec{F}_T + \vec{F}_{LA} + \vec{F}_p = \vec{0} \quad (\vec{e} = \text{loi})$$

sur x:

$$F_{LA} - 2F_T \sin 7,5 = 0 \quad (1)$$

sur y:

$$2F_T \cos 7,5 - F_p = 0 \quad (2)$$

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