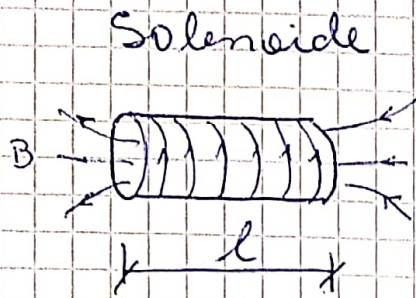


## Problema 22 Cap 30



$$l = 30 \text{ cm}$$

$$B = 5 \times 10^{-4} \text{ T}$$

$$I = 1 \text{ A}$$

$$N = ?$$

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Suponiendo que es muy largo

$$B = \frac{\mu_0 N I}{l} \rightarrow N = \frac{B \cdot l}{\mu_0 I}$$

$$N = \frac{5 \times 10^{-4} \times 0,30}{4\pi \times 10^{-7} \times 1} = \underline{120 \text{ vueltas}}$$

## Problema 35. Cap. 30

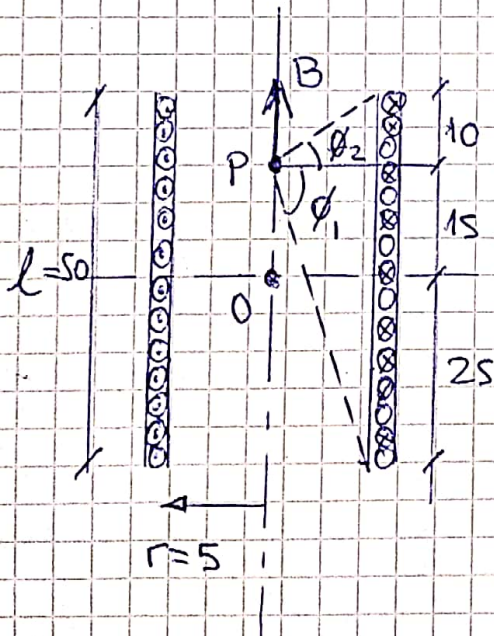
Solenoides :  $N = 500$  vueltas.

$$l = 50 \text{ cm}$$

$$B_p = ?$$

$$r = 5 \text{ cm}$$

$$I = 4 \text{ A}$$



$$B_p = \frac{\mu_0 N I}{2l} (\sin \phi_2 - \sin \phi_1)$$

$$\tan \phi_2 = \frac{10}{5} \rightarrow \phi_2 = 63,43^\circ$$

$$\tan \phi_1 = \frac{40}{5} \rightarrow \phi_1 = 82,87^\circ$$

$$B_p = \frac{4\pi \times 10^{-7} \times 500 \times 4}{2 \times 0,50} [\sin 63,43^\circ - \sin(-82,87^\circ)]$$

$$B_p = 4,74 \times 10^{-3} \text{ T}$$

$$B_p = \underline{4,74 \text{ mT}}$$

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Calcular  $B_0$  y  $B_{\text{extremo superior}}$  y comparar.

$$B_0 = 4,92 \mu\text{T}$$

$$B_e = 2,49 \mu\text{T}$$

$$B_e \approx \frac{B_0}{2}$$