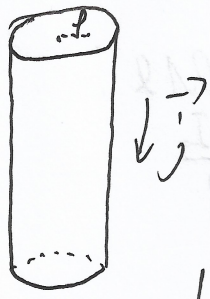
5. Дано:



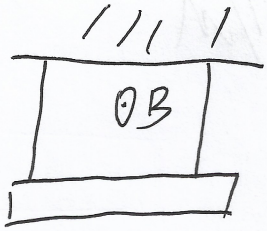
$B(\ell) - ?$

$$\oint_{\ell} \vec{B} d\vec{\ell} = \mu\mu_0 \int_0^{\ell} j \pi r dr$$

$$2B(\ell)\pi\ell = \mu\mu_0 j \pi \ell^2$$

$$B(\ell) = \frac{\mu\mu_0 j \ell}{2}$$

6. Дано:



$\ell = 0.25 м$

$B = 2.5 \times 10^{-3} Тл$

$U - ?$ чтобы конец будет невесом

$$R = \rho \frac{\ell}{S} \quad (1)$$

$$F = IB\ell \quad (2)$$

$$I = \frac{U}{R} \quad (3)$$

$$F = mg \quad (4)$$

$$m = \rho' S \ell \quad (5)$$

(1) и (5)

$$U = \frac{g \rho' \ell}{B}$$

$$= \frac{1.7 \times 10^{-8} \times 8960 \times 1.25}{2.5 \times 10^{-3}}$$

$$\approx 0.76 В$$