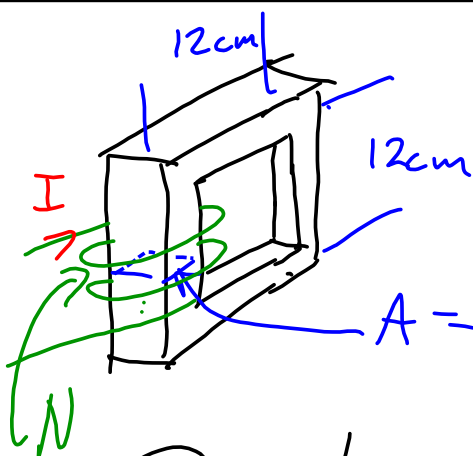


$$B = \frac{\Phi}{A} = \mu \cdot H$$

$$= \mu \cdot \frac{I \cdot N}{L}$$

$$\frac{\Phi}{\mu \cdot A} = \frac{I \cdot N}{L}$$

$$\frac{L}{\mu \cdot A} = \frac{I \cdot N}{\Phi} = R$$



$$L = 4 \cdot 12 \text{ cm} = 48 \text{ cm}$$

$$N_r = 800 \quad \mu_0 = 4\pi \cdot 10^{-7}$$

$$A = 0,03^2 \text{ m}^2 = 9,0 \cdot 10^{-4} \text{ m}^2$$

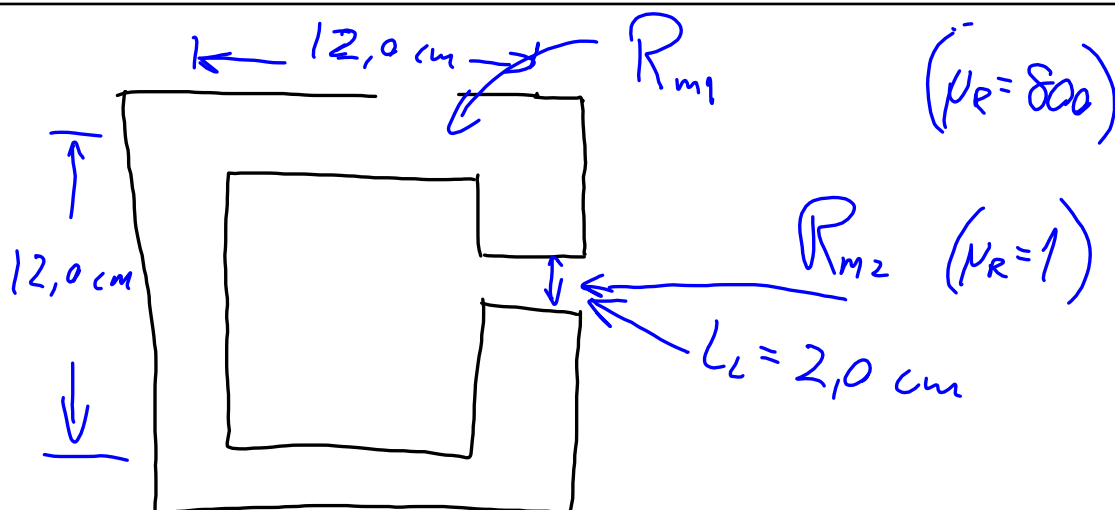
$$R_m = \frac{L}{\mu \cdot A} = \frac{0,48 \text{ [m]}}{9,0 \cdot 10^{-4} \text{ [m}^2\text{]} \cdot 4\pi \cdot 10^{-7} \cdot 800 \left[\frac{\text{Wb}}{\text{At} \cdot \text{m}} \right]}$$

$$= 5,3 \cdot 10^5 \left[\frac{\text{At}}{\text{Wb}} \right]$$

$$N \cdot I = 1000 \cdot 10 \text{ [At]} = 10,0 \text{ [At]}$$

$$\phi = \frac{N \cdot I}{R_m} = \frac{10,0 \text{ [At]}}{5,3 \cdot 10^5 \left[\frac{\text{At}}{\text{Wb}} \right]} = 1,9 \cdot 10^{-5} \text{ [Wb]}$$

$$B = \frac{\phi}{A} = \frac{1,9 \cdot 10^{-5} \text{ [Wb]}}{9,0 \cdot 10^{-4} \text{ [m}^2\text{]}} = 0,2 \cdot 10^{-1} \text{ [T]} \\ = 200 \text{ [mT]}$$



$$R_{mT} = R_{m1} + R_{m2}$$

$$R_{m1} = \frac{L}{\mu_r \mu_0 A} = \frac{4 \cdot 12,0 - 2,0 \text{ [cm]}}{9,0 \cdot 10^{-4} \cdot 800 \cdot 4 \cdot 10^{-7}} = \frac{0,46 \text{ [m]}}{0,9 \cdot 10^{-5} \left[\frac{\text{Wb}}{\text{At}} \right]}$$

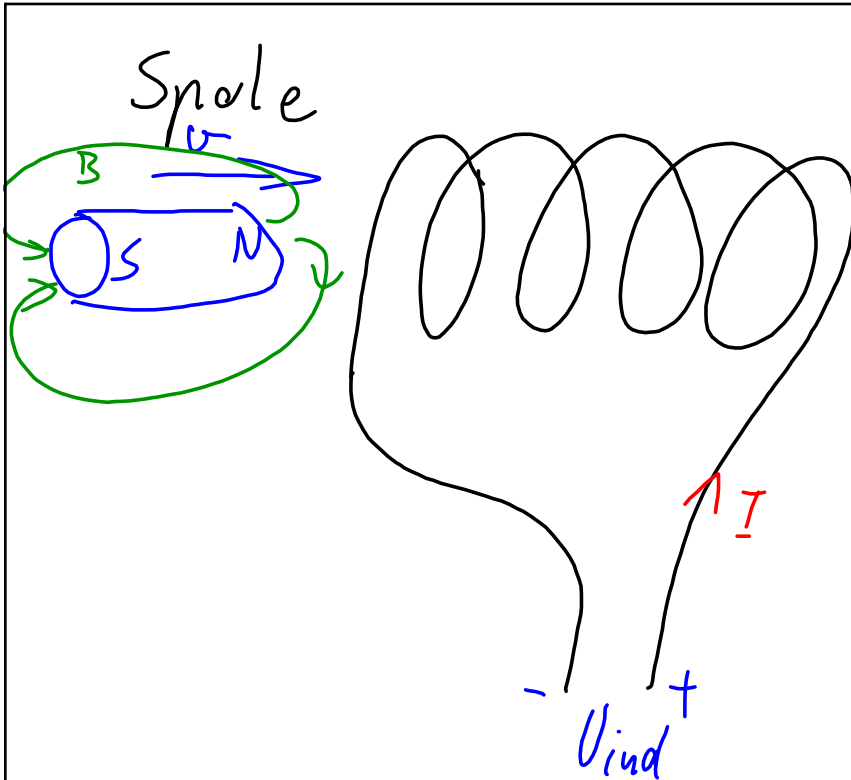
$$R_{m2} = \frac{L_2}{\mu_0 \mu_r A} = \frac{0,02 \text{ [m]}}{4 \cdot 10^{-7} \cdot 9,0 \cdot 10^{-4} \left[\frac{\text{Wb}}{\text{At}} \right]}$$

$$= 4,1 \cdot 10^8 \left[\frac{\text{At}}{\text{Wb}} \right]$$

$$R_{m1} = 5,11 \cdot 10^4 \left[\frac{\text{At}}{\text{Wb}} \right]$$

$$R_{mT} = R_{m1} + R_{m2} = 5,1 \cdot 10^4 + 4,1 \cdot 10^8 \approx 4,1 \cdot 10^8$$

$$\Phi = \frac{N \cdot I}{R_{mT}} = \frac{10,0 \text{ [At]}}{4,1 \cdot 10^8 \left[\frac{\text{At}}{\text{Wb}} \right]} = 2,5 \cdot 10^{-8} \text{ [Wb]}$$



$$L = \chi [H]$$

↑ Symbol for spole
 ↑ Størrelse
 ↑ Benevnelse: Henry

Størrelsen på spolen sier noe om hvor godt spolen klarer å motsette forandringen i magnet feltet