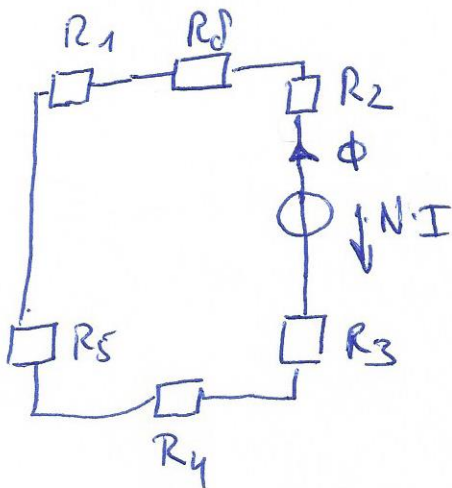


3.8)

a)

 $N \cdot I \Rightarrow I$ nicht gegeben $\Phi = ?$

$$R_1 = \frac{L_{E1}}{\mu_0 \mu_r A_1} = \frac{0,02 \text{ m}}{4\pi \cdot 10^{-7} \cdot 2000 \cdot 0,0002 \text{ m}^2} = 3,98 \cdot 10^4 \text{ H}$$

$$R_2 = \frac{L_{E2}}{\mu_0 \mu_r A_2} = \frac{0,02 \text{ m}}{4\pi \cdot 10^{-7} \cdot 2000 \cdot 0,0002 \text{ m}^2} = 3,98 \cdot 10^4 \text{ H}$$

$$R_3 = \frac{L_{E3}}{\mu_0 \mu_r A_2} = \frac{0,025 \text{ m}}{4\pi \cdot 10^{-7} \cdot 2000 \cdot 0,0001} = 9,9 \cdot 10^4 \text{ H}$$

$$R_4 = \frac{L_{E4}}{\mu_0 \mu_r A_1} = \frac{0,0414 \text{ m}}{4\pi \cdot 10^{-7} \cdot 2000 \cdot 0,0002} = 8,1 \cdot 10^4 \text{ H}$$

$$R_5 = \frac{L_{E5}}{\mu_0 \mu_r A_2} = \frac{0,025}{4\pi \cdot 10^{-7} \cdot 2000 \cdot 0,0001} = 9,9 \cdot 10^4 \text{ H}$$

$$R_6 = \frac{L_{E6}}{\mu_0 \cdot A_1} = \frac{0,001 \text{ m}}{4\pi \cdot 10^{-7} \cdot 0,0002} = 3,98 \cdot 10^4 \text{ H}$$

$$b) \Phi = B \cdot A$$

$$H_d = \frac{B_d}{\mu_0} \Leftrightarrow B_d = H_d \cdot \mu_0 = 5 \cdot 10^5 \frac{\text{A}}{\text{m}} \cdot 4\pi \cdot 10^{-7} \frac{\text{Vs}}{\text{A} \cdot \text{m}} = \frac{1}{5} \pi$$

$$\Phi = \frac{1}{5} \pi \cdot A_1 = B_d \cdot A_1 = \frac{1}{5} \pi \cdot 0,0002 = 1,256 \cdot 10^{-4} \text{ Vs}$$

$$\Phi = B_3 \cdot A_2 \Leftrightarrow \frac{\Phi}{A_2} = B_3 \Leftrightarrow B_3 = \frac{1,256 \cdot 10^{-4}}{0,0001} = \frac{2}{5} \pi = 1,26 \text{ T}$$

$$c) \Phi = \frac{N \cdot I}{R_{\text{ges}}} \Rightarrow I = \frac{\Phi}{N} (R_{\text{ges}})$$

$$I = 1,093 \text{ A}$$