

Parallele draden

$$9 \quad R = \rho \cdot \frac{L}{A} \rightarrow 0,023 = 17 \cdot 10^{-9} \cdot \frac{0,50}{A} \rightarrow A = 3,696 \cdot 10^{-7} \text{ m}^2$$

$$A = \frac{1}{4} \pi D^2 \rightarrow D^2 = \frac{4A}{\pi} = \frac{4 \cdot 3,696 \cdot 10^{-7}}{\pi} \rightarrow D = 6,9 \cdot 10^{-4} \text{ m}$$

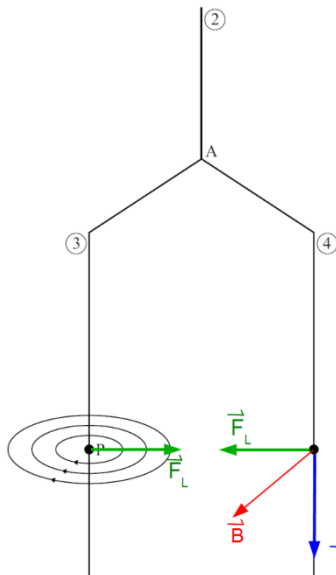
$$10 \quad R_{\text{tot}} = 4 \cdot 0,023 + \frac{1}{2} \cdot 0,023 = 0,1035 \Omega$$

$$U = i \cdot R_{\text{tot}} = 20 \cdot 0,1035 = 2,1 \text{ V}$$

11 Door snoer 1 gaat alle stroom van 20 A:

$$\text{warmte-ontwikkeling: } i^2 R t = 20^2 \cdot 0,023 \cdot 5 = 46 \text{ J} = 5 \cdot 10^1 \text{ J}$$

12



13 Door elke draad gaat 12,5 A.

$$B = 4\pi \cdot 10^{-7} \cdot \frac{12,5}{2\pi \cdot 0,04} = 6,3 \cdot 10^{-5} \text{ T}$$

$$F = B \cdot i \cdot L = 6,3 \cdot 10^{-5} \cdot 12,5 \cdot 0,5 = 3,9 \cdot 10^{-4} \text{ N}$$