

Übung:

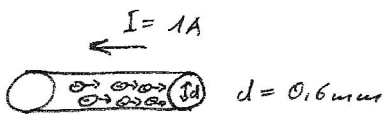
Ladung

$$Q = N \cdot e^-$$

$$[C] [As]$$

Strom

$$I = \frac{dQ}{dt}$$



$$I = \frac{Q}{t}$$

$$|Q = N \cdot e$$

$$I = \frac{N \cdot e}{t}$$

$$| \cdot t \quad | : e$$

$$N = \frac{I \cdot t}{e}$$

$$| t = 1 \text{ s} \quad | e = 1,602 \cdot 10^{-19} \text{ As} \quad | I = 1 \text{ A}$$

$$N = \frac{1 \text{ A} \cdot 1 \text{ s}}{1,602 \cdot 10^{-19} \text{ As}}$$

$$\underline{N = 6,2422 \cdot 10^{18}}$$

Stromdichte:

$$S = \frac{I}{A \perp} \left[\frac{A}{m^2} \right]$$

$$S = \frac{I}{A \perp}$$

$$| A = \pi r^2$$

$$S = \frac{I}{\pi r^2} = \frac{1 \text{ A}}{\pi (0,3 \text{ mm})^2}$$

$$\underline{S = 3,537 \frac{A}{mm^2}}$$