

# task\_klegpky1gugolsq7\_with\_calculation

## Student Group

First Name	Surname	Matrikel Nr.

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## current, electrons, chapter1 4

**Exercise E1 Electron flow**

How many electrons pass through a control cross-section of a metallic conductor when the current of  $40\text{ mA}$  flows for  $4.5\text{ s}$ ?

Solution

$$\begin{aligned} & 1.1 \cdot 10^{18} \text{ electrons} \end{aligned}$$

$$\begin{aligned} Q &= I \cdot t = 0.04 \text{ A} \cdot 4.5 \text{ s} = 0.18 \text{ As} \\ &= 0.18 \text{ C} = 0.18 \text{ C} \cdot \frac{1}{1.6022 \cdot 10^{-19} \text{ C/electron}} = 1.1 \cdot 10^{18} \text{ electrons} \end{aligned}$$

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