

# task\_klegpky1gugolsq7\_with\_calculation

## Student Group

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current, electrons, chapter1 4

### Exercise E5 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

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

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

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Last update: **2023/04/03 11:21**

