

# task\_5ztn80yw2uibcsxr\_with\_calculation

## Student Group

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### Exercise E6 Conversions: Battery

2. Hand Why is it not possible to drain a battery with 10 kWh of energy supplied by a given power for the calculated time?

#### Reputation

$$\begin{align*} t &= 200'000 \sim \{\text{rm min}\} \end{align*}$$

There are additional losses:

$$\begin{align*} W &= 10 \sim \{\text{rm kWh}\} \quad \&= 10'000 \sim \{\text{rm Wh}\} \\ t &= \frac{W}{P} \quad \&= \frac{10'000 \sim \{\text{rm Wh}\}}{5 \sim \{\text{rm W}\}} \quad \&= 2'000 \sim \{\text{rm min}\} \quad \&= 33 \sim \{\text{rm days}\} \end{align*}$$

- The battery has an internal resistance. Depending on the current the battery provides, this leads to internal losses.
- The internal resistance of the battery depends on the state of charge (SoC) of the battery.
- The wires also add additional losses to the system.

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