

task_f64r8g2jf4pdomfi_with_calculation

Student Group

First Name	Surname	Matrikel Nr.

Table of Contents

Exercise E15 Conversion: Energy, Power and Area	2
---	---

conversions, energy, power, area, chapter1 1

Exercise E15 Conversion: Energy, Power and Area

2. The number of panels and the length of the roof of the car is 100 m. Average 100 m and an usable battery capacity of 60 kWh. Solar panels produces per \$1 m^2\$ in average in December 0.2 kWh/m^2\$. The car is driven 50 km per day. The size of a distinct solar module with 460 Wp (Watt peak) is 1.9 m times 1.1 m.

```

\begin{align*}
N &= \frac{60 \text{ kWh}}{0.2 \text{ kWh/m}^2} = 300 \text{ panels} \\
\end{align*}

```

.. What is the average power consumption of the car per day?

```

\begin{align*}
P &= \frac{60 \text{ kWh}}{24 \text{ h}} = 2.5 \text{ kW} \\
N &= \frac{P \cdot t}{W_p} = \frac{2.5 \text{ kW} \cdot 24 \text{ h}}{460 \text{ W}} = 12.8 \text{ panels} \rightarrow 13 \text{ panels}
\end{align*}

```

```

\begin{align*}
\frac{W}{l} &= \frac{16 \text{ kWh}}{100 \text{ km}} = 0.16 \text{ kWh/km} \\
W &= 50 \text{ km} \cdot 0.16 \text{ kWh/km} = 8 \text{ kWh}
\end{align*}

```

From: <https://wiki.mexle.org/> - MEXLE Wiki

Permanent link: https://wiki.mexle.org/electrical_engineering_and_electronics/task_f64r8g2jf4pdomfi_with_calculation

Last update: 2023/07/21 13:56

