task_f64r8g2jf4pdomfi_with_calculation

Student Group

First Name	Surname	Matrikel Nr.

Table of Contents

conversions, energy, power, area, chapter1 1

Exercise E1 Conversion: Energy, Power and Area

2. How many solar panels are needed to supply the car with energy for 100 km?
3. What is the average power consumption of the car per day?

Result:

Solution:

Wpeak) is $1.9~{\rm m} \times 1.1~{\rm m}$.

\begin{align*} A_{solar panel} &= 1.9~{\rm m} \cdot 1.1~{\rm m} = 2.1~{\rm m^2} \end{align*}

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

\begin{align*} P_{solar panel} &= 1~{\rm m^2} \cdot 0.2~{{\rm kWh}\over{\rm m^2}} = 0.2~{\rm kWh} \end{align*}

Solution:

\begin{align*} {{W}\over{l}} &= {{16~{\rm kWh}}\over{100~{\rm km}}} = 0.16 {{~{\rm kWh}}\over{~{\rm km}}} \\ W &= 50~{\rm km} \cdot 0.16 {{~{\rm kWh}}\over{~{\rm km}}} = 8~{\rm kWh} \end{align*}