task_f64r8g2jf4pdomfi_with_calculation

Student Group

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Exercise E1 Conversion: Energy, Power and Area

2. How many solar panels are needed to produce the energy for the car?
3. What is the area of the solar panels?

Result

Solution

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

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

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

kWh/100km

Solution:

m^2}}\over{2.1~{\rm m^2/panel}}} \\ &= 19.04~{\rm panels} \rightarrow 20~{\rm panels} \end{align*}

\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*}