

# task\_f64r8g2jf4pdomfi\_with\_calculation

## Student Group

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conversions, energy, power, area, chapter1 1

Exercise E12 Conversion: Energy, Power and Area

2. The number of panels and the length of the roof of a car (100 km) average 100 kWh 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.

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\begin{align*}
W &= 460 \text{ (Watt)} \\
A &= 1.9 \text{ (m)} \times 1.1 \text{ (m)} \\
\end{align*}
.. What is the average power consumption of the car per day?
\begin{align*}
A \times 20 \text{ (panel)} \times 460 \text{ (W)} &= W \\
20 \times 460 \text{ (W)} &= W \\
\end{align*}
\begin{align*}
W &= 19.04 \text{ (W)} \\
\end{align*}

\begin{align*}
\frac{W}{1} &= \frac{16 \text{ (kWh)}}{100 \text{ (km)}} = 0.16 \\
\frac{\text{~ (kWh)}}{\text{~ (km)}} \parallel W &= 50 \text{ (km)} \times 0.16 \frac{\text{~ (kWh)}}{\text{~ (km)}} = 8 \text{ (kWh)} \end{align*}

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