

task_239xqp7zjr32bv4a_with_calculation

Student Group

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Exercise E1 Conversions: Speed, Energy, and Power

2. The energy of a 60.0-hertz light bulb (100-W) is 1.6 $\times 10^{-19}$ J. The charge of about 1.6×10^{-19} C is the charge of one electron. How many electrons pass through the bulb in 1 h?
1. A vehicle speed of 80.00 $\frac{\text{km}}{\text{h}}$ is in $\frac{\text{m}}{\text{s}}$

Solution

```
\begin{align*} \frac{1'000~\text{m}}{3'600~\text{s}} &= 80~\frac{\text{m}}{3.6~\text{s}} \quad \&= 22.22~\frac{\text{m}}{\text{s}} \end{align*}
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```
\begin{align*} 10~\frac{\text{m}}{\text{s}} &= 10~\frac{\text{m}}{\text{s}} \cdot \frac{3'600~\text{s}}{1~\text{h}} = 36'000~\frac{\text{m}}{\text{h}} \end{align*}
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