task_239xqp7zjr32bv4a_with_calculation

Student Group

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Exercise E2 Conversions: Speed, Energy, and Power

Convert the following values [illegible] 1~{\rm µW}$ [illegible] for $12~\rm
Solution
[illegible] has the charge of about $1.6 \cdot 10^{-19}{\rm C}$)
1. A vehicle speed of $80.00~{\rm {km}\over{h}}$ in ${\rm {m}\over{s}}$

Solution
Fast Solution
\begin{align*} [illegible] \end{align*}
{1'000~m}\over{3'600~s}} = 80~{\rm {m}\over{3.6~s}} \\ &= 22.22~{\rm {m}\over{s}} \end{align*}
\begin{align*} [illegible] \cdot
[illegible] {numerical value}}\over{3.6}}\qquad \rightarrow \qquad v = 22.22~{\rm {m}\over{s}} \end{align*}
\cdot 24 \cdot 60 \cdot 60 [illegible] &= 864'000~{\rm s} \\ W_{\rm absorbed} &= 1~{\rm µW} \cdot 864'000~{\rm s} \\ &= 864'000~{\rm µWs} \\ &= 864~{\rm mWs} \\ &= 0.864~{\rm Ws} \\ &= 0.864~{\rm J} \end{align*}

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