

task_239xqp7zjr32bv4a_with_calculation

Student Group

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Table of Contents

Exercise E5 Conversions: Speed, Energy, and Power 2

conversions, speed, energy, power, chapter1 1

Exercise E5 Conversions: Speed, Energy, and Power

2. The energy of a 6000-hertz high-power radio station is given as 16 J in 1000 cycles of the signal. The station has the charge of about $1.6 \cdot 10^{-19} \text{ C}$.
1. A vehicle speed of $80 \frac{\text{km}}{\text{h}}$ in $\frac{\text{m}}{\text{s}}$

Solution

fast Solution

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\begin{align*} v &= \frac{80 \text{ km}}{3600 \text{ s}} = 22.22 \frac{\text{m}}{\text{s}} \\ E &= 16 \text{ J} \\ Q &= 1.6 \cdot 10^{-19} \text{ C} \end{align*}
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\begin{align*} P &= \frac{E}{t} = \frac{16 \text{ J}}{1000 \text{ s}} = 0.016 \text{ W} \\ E &= 16 \text{ J} \\ Q &= 1.6 \cdot 10^{-19} \text{ C} \end{align*}
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Last update: 2023/04/03 12:38

