

# task\_239xqp7zjr32bv4a\_with\_calculation

## Student Group

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## Table of Contents

Exercise E8 Conversions: Speed, Energy, and Power .....	2
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conversions, speed, energy, power, chapter1 1

**Exercise E8 Conversions: Speed, Energy, and Power**

1. A vehicle speed of  $80.00 \frac{\text{km}}{\text{h}}$  in  $\frac{\text{m}}{\text{s}}$   
 2. The energy of  $60.0 \text{ kWh}$  in  $\text{J}$   
 3. A battery with a capacity of  $1.6 \cdot 10^{-19} \text{ C}$   
 4. A power of  $1 \text{ kW}$  in  $\text{W}$

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Solution
1. \begin{align*} 80.00 \frac{\text{km}}{\text{h}} &= 80.00 \frac{1000 \text{ m}}{3600 \text{ s}} = 22.22 \frac{\text{m}}{\text{s}} \end{align*}
2. \begin{align*} 60.0 \text{ kWh} &= 60.0 \text{ kWh} \cdot \frac{3600 \text{ s}}{1 \text{ h}} \cdot \frac{1000 \text{ W}}{1 \text{ kW}} = 2.16 \cdot 10^8 \text{ Wh} = 2.16 \cdot 10^8 \text{ J} \end{align*}
3. \begin{align*} 1.6 \cdot 10^{-19} \text{ C} &= 1.6 \cdot 10^{-19} \text{ C} \end{align*}
4. \begin{align*} 1 \text{ kW} &= 1000 \text{ W} \end{align*}
    
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