

Be sure to show all work, use the correct number of significant figures, circle final answers and use correct units in all problems.

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1. Automotive batteries generally are filled with sulfuric acid. If a battery has a volume of 1.86 L and contains  $3.42 \times 10^6$  mg of sulfuric acid, what is the density of sulfuric acid in g/mL? (5 points)
  
  
  
  
  
  
  
  
  
  
2. A child's fever medicine has a concentration of 250 mg/mL. If a child receives 2.0 teaspoons of this medicine, how many mg of medicine is being received? (1 teaspoon = 4.93 mL) (5 points)
  
  
  
  
  
  
  
  
  
  
3. Perform the following calculations. Report the answer to the correct number of significant digits. (5 points)

$$110.23 \text{ cm} + 0.989 \text{ cm} + 1.20 \text{ cm} \quad \underline{\hspace{2cm}}$$

$$\frac{(2.34 \times 10^3 \text{ cm})(4.2021 \times 10^{-6} \text{ cm})}{(8.7 \times 10^3 \text{ s})} \quad \underline{\hspace{2cm}}$$

$$154.0 = 3.76 \times Q \quad Q = \underline{\hspace{2cm}}$$

4. Convert the following quantities: (5 points) Watch sig figs!

**157.7 K to °C.**

**9.22 g/cm<sup>3</sup> to g/mm<sup>3</sup>**

**7.360 cg to ng**

