

REVIEW QUESTIONS

## Chapter 1

1. Express each of the following numbers in scientific notation, with 3 significant figures:

a) 2,900,000 \_\_\_\_\_ b) 0.005865 \_\_\_\_\_

c) 0.000004563 \_\_\_\_\_ d) 410870 \_\_\_\_\_

2. Perform the following operations with the correct number of significant digits:

a)  $\frac{2.42 \text{ g} + 15.6 \text{ g}}{5.31 \text{ g}} =$

b)  $\frac{(6.626 \times 10^{-34} \text{ Js})(2.98 \times 10^8 \text{ m/s})}{4.73 \times 10^6 \text{ m}} =$

c)  $12.62 + 1.5 + 0.25 =$

3. The following data was collected by four different students while determining the mass of an unknown sample. The true value is 6.72 g.

- A) 6.71 g, 6.75 g, 6.70 g  
B) 6.56 g, 6.76 g, 6.84 g  
C) 6.50 g, 6.48 g, 6.52 g  
D) 6.41 g, 6.72 g, 6.55 g

a) Which set of data has high accuracy, but low precision? \_\_\_\_\_

b) Which set of data has low accuracy, but high precision? \_\_\_\_\_

c) Which set of data has good accuracy and precision? \_\_\_\_\_



8. Three different samples of a solid containing mercury and oxygen were analyzed and the following data was obtained:

	<b>Mass of Sample</b>	<b>Mass of Mercury</b>	<b>Mass of Oxygen</b>
<b>Sample A</b>	1.0410 g	0.9641 g	0.0769 g
<b>Sample B</b>	1.5434 g	1.4293 g	0.1141 g
<b>Sample C</b>	1.2183 g	1.1283 g	0.0900 g

Are these data consistent with the hypothesis that the material is a compound?

9. A fish tank is 20.0 in long, 20.0 in deep and 10.0 in high. What is the maximum volume of water, in liters, that the fish tank can hold?