Assignment 1

Choose/Fill-in the correct answer.

1. **A steel ball-bearing with a circumference of 31.5 mm weighs 4.20 g. What is the density of the steel in *g/cm*^{3}? Given,**

$$\text{Volume of a sphere} = \frac{4}{3}\pi r^3$$

and

$$\text{Circumference of a circle} = 2\pi r$$

- 7.96 g/cm^3
- 7.96 x 10^{-1} g/cm^3
- 7.96 x 10^{-2} g/cm^3
- 7.96 x 10^{-3} g/cm^3

2. **What fraction or multiple of a unit does the symbol *M* represent?**
   - 10^{-6}
   - 10^{-3}
   - 10^{3}
   - 10^{6}

3. **Carry out the following operation and express the answer with the appropriate number of significant figures and the proper units. (To answer this question, you do not need to know the definition of a molecule or a mole.)**

$$\frac{6.022 \times 10^{23}\ \text{molecules/mole} \cdot 1.04 \times 10^{2}\ \text{g}}{44.01\ \text{g/mole}} = x$$

- x = 1.423 x 10^{24} g molecule/mole
- x = 1.42 x 10^{24} g/molecule
- x = 1.423 x 10^{24} g/mole
- x = 1.42 x 10^{24} molecules

4. **Gold is a very soft metal that can be hammered into extremely thin sheets. If a 1.00 gram piece of gold is hammered into a uniform sheet whose area is 40.0 cm^2, what is the thickness of the sheet in micrometer? Density of gold is 19.32 g/cm^3.**
   - x = 12.9 micrometer
   - x = 1.29 x 10^{-7} micrometer
   - x = 5.18 x 10^{2} micrometer
   - x = 5.18 x 10^{-6} micrometer

5. **Convert 4.98 nanograms to micrograms**
   - 4.98 x 10^{-3} µg
   - 4.98 x 10^{-6} µg
   - 4.98 x 10^{3} µg
   - 4.98 x 10^{6} µg

6. **Perform the following calculations and report the number of significant figures in your answer.**
   [(3.4 grams + 0.02 grams) / 34.55 g/mole] / 0.02 L
   - 1
   - 2
   - 3
   - 4

7. **The density of bromine, Br_2 is 3.1 g/mL. What is the mass of 5.667 L of bromine?**
   - x = 17.6 g.
   - x = 18 g.
   - x = 1.8 x 10^{4} g.
   - x = 1.76 x 10^{4} g.

8. **Determine the number of significant figures in the measurement, 5.0030 kg.**
   - 5
   - 4
   - 3
   - 2

9. **Carry out the following operations and report your final answer in the correct number of significant figures.**
   (3.6 + 3.475) x (6.834) = *x*
   - x = 48.351
   - x = 48.35
   - x = 48.4
   - x = 48

10. **Round off the following number to two significant figures, 76.54 kg.**
    - 80. kg
    - 80 kg
    - 76 kg
    - 77 kg

Send to obtain your score

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