

CHEM 130
Quiz 1 -

Name _____
Due by 12:00 noon, Monday August 27.

1. One of the challenges that we all deal with at least to some extent is stress. It is important for each of us to have a means to minimize the impact of stress on our lives. What is your preferred release from stress? (6 points)

Any answer was fine

2. Recently, *Science* magazine published a periodic table with a haiku for each element. Go to this periodic table at the link below and find the element whose atomic number corresponds to your birthdate+20 (for example, I was born on December 6, so I would select element 26, which is iron. Write the haiku for that element and “decode” the haiku below. Searching for the element on Wikipedia may be a good place to start. (6 points)

<http://vis.sciencemag.org/chemhaiku/>

Anything that showed a reasonable effort earned full credit

These are typical problems involving unit conversion, the metric system, percentage calculations, etc. You may use your book, **but you may not seek help from anyone other than Dr. Lamp**. As you work these problems remember to keep track of units and be sure that every answer has the correct units and significant figures. Clearly mark your answers.

$$\text{Percent (\%)} = (\text{parts component}) / (100 \text{ parts sample})$$

e.g. % by mass = (g component) / (100g sample)

3. The karat is a measure of the purity of gold, with 24 karat gold referring to pure gold. Much gold jewelry is 14 karat, which is 58.3% gold by mass in an alloy with elements like copper, zinc and nickel added to increase durability. If you have a 14 karat gold ring with a mass of 22.5 grams, and the value of pure gold is \$38.14 per gram, what is the value of the gold in the ring? (6 points)

$$22.5 \text{ g ring} \times \frac{58.3 \text{ g gold}}{100 \text{ g ring}} = 13.12 \text{ g gold}$$

$$13.12 \text{ g gold} \times \frac{\$38.14}{1 \text{ g gold}} = \$500.30 = \$500$$

Answer **\$500**

4. A typical drop of water has a volume of about 0.050 mL. If the density of water is 1.00 grams per mL and 6.02×10^{23} molecules have a mass of 18.0 grams, how many water molecules are in a drop of water? (7 points)

$$0.050 \text{ mL} \times \frac{1.00 \text{ g water}}{1 \text{ mL}} = 0.050 \text{ g water}$$

$$0.050 \text{ g water} \times \frac{6.02 \times 10^{23} \text{ molecules}}{18.0 \text{ g water}} = 1.67 \times 10^{21} \text{ molecules}$$

Answer **1.7×10^{21} molecules**