**Chemistry – Chapter 3 Study Guide**

**Do your best to complete this from memory, to test your knowledge.**

1. Know how to write numbers in scientific notation.

Practice:

1. 12,900,000,000 = 3. 0.003400 =
2. 0.00452 = 4. 8,700,000 =
3. Know how to add, subtract, multiply, divide numbers in scientific notation.

Practice:

1. (2.4 x 10³⁵)(2 x 10²) = 3. (7.0 x 10²)/(3.5 x 10⁵) =
2. (3.01 x 10²) + (4.22 x 10³) = 4. (6.50 x 10⁴) – (1.1 x 10³) =
3. Know the difference between precision and accuracy in measurements.

Draw three arrows with Draw 3 arrows with Draw 3 arrows with

low accuracy & high precision high accuracy & low precision low accuracy and low precision

4. Be able to calculate error and percent error.

 Equation for error:

 Equation for % error:

The known density of aluminum is 2.7 g/mL. You calculate it in a lab to be 2.3 g/mL. What is your percent error? As usual, show ALL work.

5. Know rules for counting significant figures and rounding.

Rules:

 1.

 2.

 3.

 4.

 5.

Rounding Rules:

 1. ≥6 …

 2. ≤4 …

3. 5 …

6. Know rules for significant figures in adding, subtracting, multiplying, dividing.

Rules:

 1.

 2.

8. List the SI base units for length, mass, temperature, and time.

 Length = Mass =

 Temperature = Time =

9. Explain the difference between mass and weight.

11. Know how to convert between the Celsius and Kelvin scale. Explain here:

12. What is absolute zero?

13. Know how to calculate density. Explain how, here:

14. Explain what a conversion factor is. Also, draw the metric stair step from memory.

15. Be able to set up a problem using dimensional analysis.

Sample problem:

If you are given an object that’s volume is 53mL and mass is 100g, convert this measurement to kg/L.

Sample problem:

The Earth’s circumference is 24901 miles. What is this distance in meters?



16. Go over all notes, worksheets, quizzes, etc.