Name_____Period_____

CHEMISTRY UNIT 1 REVIEW – SCIENTIFIC MEASUREMENTS

1. Contrast accuracy and precision.

2. Quantities have two parts, a _____ and a _____.

Determine the amount of significant figures for each problem

3. ____ 600
4. ____ 600.
5. ____ 0.00060
6. ____ 6.000×10^{12}

*Express 0.0032065614 in scientific notation with the following number of sig figs **below**:*

7. 2 sig figs_____

8. 4 sig figs_____

9. 6 sig figs_____

Convert the following scientific notation back into standard notations below with appropriate sigfigs:

10. 4.66×10^{5} _____
11. 8.604×10^{-4}_____

12. State the significant figure rule for ***multiplying and dividing***, and then solve the problem.
Rule:

$$\frac{(0.042)}{(1.278)(1.4267)} = \_\_\_\_\_$$

13. State the significant figure rule for ***adding and subtracting***, and then solve the problem.
Rule:

$$50.23 + 23.7 + 14.678 = \_\_\_\_\_$$

14. Define a derived unit and give an example.

15. The SI base unit for time is _____, length is _____, and mass is _____.

16. Which conversion factor would be used to convert **feet to inches**: $\frac{1 \text{ foot}}{12 \text{ inches}}$ or $\frac{12 \text{ inches}}{1 \text{ foot}}$?

17. Use dimensional analysis to convert 15 liters to cm^3.

18. 5.0 miles = _____ mm (0.621 mi = 1 km)

19. 15.78 gallons = _____cm^3 (1 gallon = 3.7854 L)

20. 0.334 g/cL = _____ kg/L

21. A student measured the temperature of boiling water and got a reading of 97.5^0C. We know the actual boiling point of water is 100^0C. What is the percentage error?

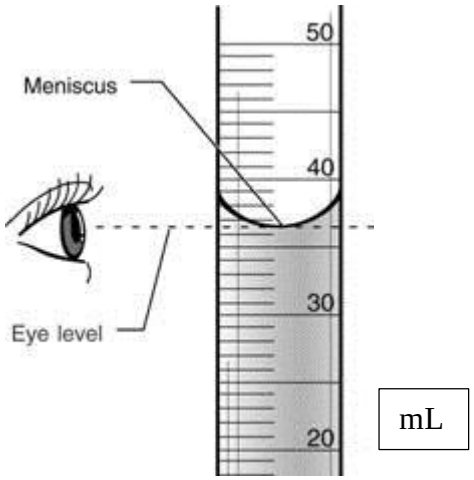
$$\% \, Error = \frac{|accepted - experimental|}{accepted} \, x \, 100$$

22. When making a graph, which axis does the ***independent variable*** go on? _____

Which axis does the ***dependent variable*** go on? _____

23. Record the measurement on the right to the correct number of significant figures which includes all the known values, one estimated value, and units:

_____



24. Calculate the mass, in grams, of iron with a given volume of 3.50 cm^3. Iron has a density of 7.87 g/cm^3.

25. An unknown substance that has a mass of 15.6 grams. A graduated cylinder was filled initially with 30.0 mL of water but once the substance was dropped into the graduated cylinder, the water rose to 37.5 mL. Calculate the density, in g/mL, of this unknown substance.

Review your lab safety rules and the NFPA safety diamond!

Remember: Exact numbers have an infinite number of significant figures! They will not affect the precision of your equipment. Conversion factors are all exact numbers.