

Honors Chemistry Name: _____ Period: _____ Date: _____

Show all related equalities prior to solving these problems. Show all your work, units and report all answers with the correct number of significant figures. (Note: $1 \text{ mL} = \text{cm}^3$) Box all your answers.

Dimensional Analysis Practice III

1. Sodium hydrogen carbonate, known commercially as baking soda, reacts with acidic materials such as vinegar to release carbon dioxide gas. An experiment calls for 0.348 kg of sodium hydrogen carbonate. Express this mass in milligrams.
2. The different colors of light have different wavelengths. The human eye is most sensitive to light whose wavelength is 555 nm (greenish-yellow). What is this wavelength in millimeters?
3. The total amount of fresh water on earth is estimated to be $3.73 \times 10^8 \text{ km}^3$. What is this volume in cubic meters? What is this in Liters?
4. The acidic constituent in vinegar is acetic acid. A 10.0 mL sample of a certain vinegar contains 483 mg acetic acid. What is this mass expressed in micrograms?
5. A submicroscopic particle suspended in a solution has a volume of $1.4 \mu\text{m}^3$. What is this volume in liters?