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Unit 6C Reviewing Molar Mass and Molecular Formulas

Name:

Date:

VOCABULARY: Fill in the blanks with the most appropriate term.

a. _____ is also called Avogadro's number. The mass of one mole of any pure substance is called the _____ mass. For any element, this mass is equal to the atomic mass with the unit _____ / _____ .

b. The _____ formula of a compound is the simplest whole number ratio of atoms, while the _____ formula of a compound represents the actual number of each atom in the compound.

c. _____ are compounds that crystallize from a water solution with water molecules clinging to the crystal particles.

PROBLEMS: Work each of the following problems, showing all work. These problems are representative of each type of problem worked in this unit. For more practice on a given type of problem, refer back to note-taking guides, worksheets, and quizzes.

1. Calculate the molar mass for ethane, C_2H_6.

2. Convert 45 g Se to moles of Se.

3. Convert 4.77×10^{24} molecules of SO_2 to grams?

questions continued on next page

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Work each of the following problems. SHOW ALL WORK.

4. What is the percentage composition of sodium hydroxide, NaOH?

5. A compound is found to contain 63 % manganese, Mn, and 37 % oxygen. What is the compound's empirical formula?

6. What is the empirical formula for a substance if a 1.000 g sample of it contains 0.262 grams of nitrogen, 0.075 grams of hydrogen, and 0.663 grams of chlorine?

7. What is the molecular formula for a compound with an empirical formula of NO_2 and a molar mass of 92.0 g/mol?