

MOLE Practice Problems**I. Atomic Mass vs. Molar Mass:** Calculate the molar mass/ atomic mass of the following atoms and compounds:

1. Complete the following table:

	List atom types & #'s of each type of atom	atomic mass (with correct units)	Molar mass (with correct units)
H ₂ O	H= 2 O = 1	18.02 amu	18.02 grams/ mole
Fe ₂ O ₃			
NaCl			
CO ₂			
Ba(OH) ₂			

II. Conversion Problems: For each problem you must use Dimensional Analysis, sig figs, & box your answer.2. How many **molecules** are in 2.00 moles of H₂O?Conv. Factor(s)Set-Up3. How many **atoms** are in 2.00 moles of H₂O?Conv. Factor(s)Set-Up

4. Given 12 g of aluminum, how many moles do you have?

Conv. Factor(s)Set-Up

5. How many atoms are in 55 grams of iron?

Conv. Factor(s)Set-Up6. How many moles are in 6.02×10^{23} atoms of carbon?Conv. Factor(s)Set-Up

7. How much do 3.01×10^{23} atoms of He weigh?
Conv. Factor(s) Set-Up
8. Given 0.345 mole of water, how many grams would you have?
Conv. Factor(s) Set-Up
9. Given 1.11 mole of CO_2 , how many grams would you have?
Conv. Factor(s) Set-Up
10. If you have 0.00812 mole of H_2CO_3 , how many molecules do you have?
Conv. Factor(s) Set-Up
11. What is the mass of 3.13×10^{21} particles of KBr?
Conv. Factor(s) Set-Up

III. Conceptual Understanding Questions

12. How is the mole similar to a dozen?
13. Which contains more atoms, a mole of copper or a mole of gold? **(write down # in each one)**
14. Which weighs more, a mole of copper or a mole of gold? **(write down how much each one weighs)**
15. a. How are the terms "molar mass" and "atomic mass" different from each other?

b. How are the terms the same?
16. Write down the conversion factors that would be used to convert between the following units:

GRAMS ←-----→ **MOLES** ←-----→ **ATOMS & MOLECULES**