

Name _____

Honors Molar Mass

A) Identify each statement as having being determined from qualitative or quantitative analysis.

1) The compound consists of carbon, hydrogen and chlorine.

2) In a molecule of this compound, there are 6 atoms of carbon, 4 atoms of hydrogen and 2 atoms of chlorine.

B) Determine the number of moles of each element present in one more of the following compounds:

Formulas	Number of:	Number of:	Number of:
Example: CH ₃ COOH	C: 2	H: 4	O: 2
NaCl	Na:	Cl:	
CaBr ₂	Ca:	Br:	
K ₂ SO ₄	K:	S:	O:
Fe ₂ (CO ₃) ₃	Fe:	C:	O:

C) Determine the total moles of atoms in the following formulas:

Formula	Total number of moles of atoms	Formula	Total number of moles of atoms	Formula	Total number of moles of atoms
NaCl		2 NaNO ₃		4 (NH ₃) ₂ SO ₄	
MgSO ₄		Pb ₃ (PO ₄) ₂		3 K ₂ Cr ₂ O ₇	

D) Calculate the gram formula masses (molar masses) in g/mole of the following compounds. Use your periodic table to determine the masses, and round them off to the nearest tenths.

Formula	Gram formula mass (show work)	Formula	Gram formula mass (show work)
NaCl		MgF ₂	
HNO ₃		Mg(OH) ₂	
Na ₂ SO ₄		(NH ₄) ₂ CO ₃	

E) Determine how many moles of each substance is represented by the given mass. Use the formula masses you calculated in D) to solve the problems

$$\text{grams} \times \frac{1 \text{ mole}}{\text{G.F.M.}} = \text{moles}$$

Mass and Formula	Show work	Moles of Substance
36.5 grams of NaCl		
29.25 grams of MgF ₂		
71 grams of Na ₂ SO ₄		
15.75 grams of HNO ₃		

F) Determine the mass of the given number of moles of each substance. Use the formula masses you calculated in D) to solve the problems

$$\text{moles} \times \frac{\text{G.F.M.}}{1 \text{ mole}} = \text{grams}$$

Moles of compound	Show work	Grams of Substance
2.00 moles of NaOH		
10.0 moles ZnSO ₄		
.500 moles of CH ₄ S		
4.00 moles of Mg(OH) ₂		