

Mole HW #1 Put answers in the boxes, show ALL work below and on white paper.

Cut the boxes out and attach it to the white paper where you did ALL of your work. Label the page: Mole HW #1

1. How many atoms are in two moles of aluminum?
2. How many molecules are in one mole of  $\text{CO}_2$ ?
3. How many atoms are in 3.50 moles of titanium?

How many oxygen atoms are in a particle of each of these compounds?  
Example: Aluminum hydroxide  $\text{Al}(\text{OH})_3$  this has 3 oxygen atoms

4. acetylsalicylic acid (aspirin) -  $\text{HC}_8\text{H}_7\text{O}_4$
5. nitroglycerine, explosive -  $\text{C}_3\text{H}_5(\text{NO}_3)_3$
6. barium bromate monohydrate -  $\text{Ba}(\text{BrO}_3)_2 \cdot \text{H}_2\text{O}$

How many moles in each of these? (watch SF)

7.  $1.50 \times 10^{23}$  molecules  $\text{NH}_3$  (ammonia)
8.  $1.0 \times 10^9$  molecules  $\text{O}_2$  (that's one billion) (oxygen)
9.  $6.02 \times 10^{22}$  molecules of  $\text{Br}_2$  (bromine)
10.  $4.81 \times 10^{24}$  atoms of Li (lithium)

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Mole HW #2

Write the formula of each of these 4 compounds correctly, then calculate the MOLAR MASS of each one. If you didn't look at table E you probably got the formulas incorrect.

Ammonium Phosphate

Lithium Dichromate

Barium Hydrogen Sulfate

Gold I Thiosulfate

Mole HW #3

Do all work below or on white paper.

1. You find a jar with 209 gm. of sodium hypochlorite.  
How many formula units did you find?  
(The molar mass of NaClO is 74 g/mole)
2. You have 125 g OF<sub>2(G)</sub> STP. How many grams are oxygen?
3. You have 125 g OF<sub>2(G)</sub> STP. How many grams are fluorine?
4. You have 244 g of tantalum bromide. How many grams are tantalum?
5. You have 244 g of tantalum bromide. How many grams are bromine?

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## Mole HW #4

Do all of your work below or on white paper.

1. You have a balloon containing 302 liters of nitrogen gas at STP. What does the mass of this gas?
2. There are 185 grams of sucrose, with this formula:  $C_{12}H_{22}O_{11}$  in a batch of chocolate chip cookies that you just ate. How many grams were just carbon?
3. In these cookies, how many grams are just oxygen?

Write the EMPIRICAL FORMULAS for each of these compounds

4.  $C_6H_{12}$
  5.  $C_{10}H_{22}$
  6.  $C_{10}H_{24}$
  7.  $C_{10}H_{18}$
  8.  $C_2H_6$
  9.  $C_{22}H_{44}$
  10.  $C_6H_{12}O_6$
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