

CHM130 Chapter 9 Blackboard Homework

1. Check all of the following that are **equal to 1 mole**:
 - a. 22.4 L HNO_3 (aq) at STP
 - b. 28.02 g N_2
 - c. 60.09 g SO_2
 - d. 153.81 g CCl_4
 - e. 6.02×10^{23} CH_4 molecules
 - f. 22.4 L HCl (g) at STP
 - g. 30.01 g NO_2
 - h. 119.00 KBr
 - i. 22.4 L HBr (aq) at STP
 - j. 126.90 g I_2

For problems 2-5, express your answers to two decimal places:

2. The molar mass of the CBr_4 is _____ g/mol.
3. The molar mass of the CuCr_2O_7 is _____ g/mol.
4. The molar mass of the $(\text{NH}_4)_2\text{SO}_4$ is _____ g/mol.
5. The molar mass of the $\text{Fe}(\text{C}_2\text{H}_3\text{O}_2)_3$ is _____ g/mol.
6. What mass of NO_2 is present in 3.00 moles of NO_2 ?
7. How many moles of CO are present in 175 g of CO ?
8. How many moles of HCl are present in 50.0 g of HCl ?
9. How many moles of $\text{NO}(\text{g})$ are present in 50.0 L of $\text{NO}(\text{g})$ at STP?
10. How many moles of argon gas are present in 75.0 L of argon at STP?
11. How many neon atoms are present in 25.0 g of neon?
12. How many NH_3 molecules are present in 65.0 g of NH_3 ?
13. What mass of $\text{HF}(\text{g})$ is present in 60.0 L of $\text{HF}(\text{g})$ at STP?
14. What mass of $\text{He}(\text{g})$ is present in 25.0 L of $\text{He}(\text{g})$ at STP?
15. What mass of $\text{NO}(\text{g})$ is present in 55.0 L of $\text{NO}(\text{g})$ at STP?
16. What volume (in L) of argon gas is present in 50.0 g of argon at STP?
17. What volume (in L) of CO gas is present in 105 g of $\text{CO}(\text{g})$ at STP?
18. Calculate the percent composition by mass of each element in CO_2 .
19. Calculate the percent composition by mass of each element in Na_3P .
20. Calculate the percent composition by mass of each element in CaCrO_4 .