

Name: \_\_\_\_\_

Block: \_\_\_\_\_

Date: \_\_\_\_\_

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Chemistry 11

**Moles, Molecules & STP**

Assignment

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1. Find the mass of 0.89 mol of  $\text{CaCl}_2$ .
2. A bottle of  $\text{PbSO}_4$  contains 158.1 g of the compound. How many moles of  $\text{PbSO}_4$  are in the bottle?
3. Find the mass of 1.112 mol of  $\text{HF}$ .
4. Determine the number of moles of  $\text{C}_5\text{H}_{12}$  that are in 362.8 g of the compound.
5. Find the mass of 0.159 mol of  $\text{SiO}_2$ .
6. You are given 12.35 g of  $\text{C}_4\text{H}_8\text{O}_2$ . How many moles of the compound do you have?
7. Find the mass of 3.66 mol of  $\text{N}_2$ .
8. A bottle of  $\text{KMnO}_4$  contains 66.38 g of the compound. How many moles of  $\text{KMnO}_4$  does it contain?
9. Determine the number of atoms that are in 0.58 mol of  $\text{Se}$ .
10. How many moles of barium nitrate ( $\text{BaNO}_3$ ) contain  $6.80 \times 10^{24}$  formula units?
11. Determine the number of atoms that are in 1.25 mol of  $\text{O}_2$ .
12. How many moles of magnesium bromide ( $\text{MgBr}_2$ ) contain  $5.38 \times 10^{24}$  formula units?
13. Determine the number of formula units that are in 0.688 mol of  $\text{AgNO}_3$ .
14. How many moles of ethane ( $\text{C}_2\text{H}_6$ ) contain  $8.46 \times 10^{24}$  formula units?
15. Determine the number of formula units that are in 1.48 mol of  $\text{NaF}$ .
16. How many formula units are in 3.5 g of  $\text{NaOH}$ ?

17. If you burned  $6.10 \times 10^{24}$  molecules of ethane ( $C_2H_6$ ), what mass of ethane did you burn?
18. How many formula units are in 5.1 g of  $TiO_2$ ?
19. What is the mass of  $3.62 \times 10^{24}$  molecules of methanol ( $CH_3OH$ )?
20. How many formula units are in 1.4 g of  $PbCl_2$ ?
21. Determine the mass of  $2.94 \times 10^{24}$  molecules of decane ( $C_{10}H_{22}$ ).
22. How many formula units are in 5.6 g of  $H_2S$ ?
23. A container with a volume of 893 L contains how many moles of air at STP?
24. A chemical reaction produces 0.37 mol of  $N_2$  gas. What volume will that gas occupy at STP?
25. A canister with a volume of 694 L contains how many moles of oxygen at STP?
26. A chemical reaction produces 13.8 mol of CO gas. What volume will that gas occupy at STP?
27. A tube with a volume of 3.68 L contains how many moles of neon gas at STP?
28. A chemical reaction produces 0.884 mol of  $H_2S$  gas. What volume will that gas occupy at STP?
29. A container with a volume of 101 L contains how many moles of argon gas at STP?
30. A chemical reaction produces 138 mol of HBr gas. What volume will that gas occupy at STP?