Chemistry 11
Moles and Volume at STP Worksheet

Directions: For gases at STP (273 K and 1 atm pressure), one mole occupies a volume of 22.4 L. What volume will the following quantities of gases occupy at STP?

1. 4.25 mole of H₂ ______________________
2. 3.20 moles of O₂ ______________________
3. 0.750 moles of CO₂ ______________________
4. 1.75 moles of CO₂ ______________________
5. 7.50 g of NH₃ ______________________
6. 5.05 g of H₂ ______________________
7. 100.0 g of O₂ ______________________
8. 28.0 g of N₂ ______________________
9. 60.00 g of CO₂ ______________________

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10. \(9.65 \times 10^{24}\) molecules of \(\text{NH}_3\)

11. \(2.458 \times 10^{23}\) molecules of \(\text{N}_2\)

12. \(6.598 \times 10^{24}\) atoms of \(O\) (in \(\text{O}_2\) gas)

13. \(7.526 \times 10^{25}\) molecules of \(\text{SO}_3\)

14. \(9.758 \times 10^{25}\) atoms in \(\text{N}_2\text{O}_5\)

15. \(6.758 \times 10^{26}\) atoms in \(\text{H}_2\text{SO}_4\)

16. \(6.789 \times 10^{26}\) oxygen atoms, in Sodium acetate

17. \(7.62 \times 10^{28}\) hydrogen atoms in Magnesium Benzoate