

CH 151 Study Questions for Chapter 9

1. What is the molar mass of ammonium sulfate?
2. What is the molar mass of cobalt(II) iodide hexahydrate?
3. Calculate the number of moles in 0.41 g of titanium.
4. What is the mass of 1.0×10^9 carbon atoms?
5. The density of carbon tetrachloride is 1.59 g/mL. How many Cl atoms are present in 55 mL of carbon tetrachloride?
6. The molar mass of cesium is 132.9 g/mol. What is the mass of a single Cs atom?
7. The density of lithium is 0.546 g/cm³. What volume is occupied by 1.96×10^{23} atoms of Li?
8. What is the mass percentage of oxygen in acetic acid, HCH₃CO₂?
9. Which of the following could be an empirical formula? C₆H₁₀, B₄H₁₀, NO₃, AsCl₅.
10. Benzene has an empirical formula of CH. If the molar mass of benzene is 78.11 g/mol, what is the molecular formula for benzene?
11. Toluene is 91.25% C and 8.75% H. Determine the empirical formula for toluene.
Hint: 8/7 = 1.14
12. The compound azulene is 93.71% C with the remainder hydrogen, and it has a molar mass of 128.16 g/mol. Calculate the empirical formula and molecular formula for azulene. *Hint: 5/4 = 1.25*

Answers appear on the next page

CH 151 Study Questions for Chapter 9 - *Answers*

1. 132.1 g/mol
2. 420.8 g/mol
3. 8.6×10^{-3} mol
4. 2.0×10^{-14} g
5. 1.4×10^{24} atoms
6. 2.207×10^{-22} g
7. 4.14 cm^3
8. 53.29%
9. NO_3 and AsCl_5 could be empirical formulas.
10. C_6H_6
11. C_7H_8
12. C_5H_4 (EF) and C_{10}H_8 (MF)