

3 • Molecules & Compounds

Mass Calculations – Difficulty Level 2

1 mole = 6.02 x 10²³ molecules = 22.4 L (at STP)

1. Calculate the mass of 1.28 moles CO₂. (molar mass CO₂ = 44.0 grams)
 (a) 1.28 moles CO₂
 (b) 7 g CO₂



2. What volume will 1.28 moles of CO₂ gas occupy at STP?
 (a) 1.28 moles CO₂
 (b) 7 g CO₂



3. How many molecules are there in a 1.0000 mole sample of H₂O?
 (a) 6.0220 x 10²³ molecules H₂O
 (b) 7 molecules H₂O



4. What mass of CO₂ gas occupies a volume of 100 L, at STP? (molar mass CO₂ = 44.0 grams)
 (a) 100 L moles CO₂
 (b) 7 g CO₂



5. How many molecules are in a 22.4 gram sample of H₂O? (molar mass H₂O = 18.0 grams)
 (a) 22.4 g H₂O
 (b) 7 molecules H₂O



6. What volume will 1.28 x 10²³ molecules of CO₂ occupy at STP?
 (a) 1.28 x 10²³ molecules CO₂
 (b) 7 L

