1. A sample of air contains only nitrogen and oxygen gases whose partial pressures are 0.80 atm and 0.20 atm, respectively. Calculate the total pressure and mole fractions of the gases.

2. A mixture of gases contains 0.31 mol CH₄, 0.25 mol of C₂H₆, and 0.29 mol of C₃H₈. The total pressure is 1.50 atm. Calculate the partial pressures of the gases.

3. A sample of ammonia gas is completely decomposed into nitrogen and hydrogen gases over heated iron wool. If the total pressure is 866 mmHg, calculate the partial pressure of N₂ and H₂.

4. Each of the spheres represents a different gas molecule. Calculate the partial pressures of the gases if the total pressure is 2.6 atm. (A is red, B is green)

5. Consider the three gas containers shown below. All of them have the same volume and are at the same temperature. (a) Which container has the smallest mole fraction of gas A (blue sphere)? (b) Which container has the highest partial pressure of gas B (green sphere)?