1. The volume of a sample of gas is 275mL at 15.°C. If the temperature is increased to 60.°C, then what is the volume of the gas sample? Assume that the pressure and moles are constant.

2. The pressure of a gas sample is 748.2 mmHg at 21° C. If the temperature of the gas is increased to 100.°C, then what is the pressure, in mmHg, of the gas sample? Assume that the volume and moles are constant.

3. The pressure of a 285mL sample of gas is 1.00atm. If the pressure of the gas is increased to 4.25atm., then what is the new volume of the gas? Assume that the moles and temperature are constant.

4. The volume of a sample of a gas is 2.80L at 21° C and 50.0atm. If the pressure of the gas is decreased to 0.97atm and the temperature is increased to 37° C, then what is the new volume of the gas?

5. The volume of gas in a balloon is 289mL at 29° C and 753mmHg. If the volume is decreased to 255mL and the pressure is reduced to 549mmHg, then what is the temperature of the gas in Celsius?

6. A sample of H₂ gas at STP occupies 255mL. How many grams of H₂ are present in the sample?
7. Glucose is burned in the body by the reaction below.
\[ \text{C}_6\text{H}_{12}\text{O}_6(\text{s}) + 6 \text{ O}_2(\text{g}) \rightarrow 6 \text{ CO}_2(\text{g}) + 6 \text{ H}_2\text{O}(\text{l}) \]

   a. If 6.00g of glucose is oxidized, what volume of CO\(_2\) gas would be produced at STP?

   b. What volume would be produced at normal body temperature (37°C)?

8. A gas mixture contains 0.25 moles of He, 0.25 moles O\(_2\), and 1.50 moles N\(_2\) in a cylinder. If the total pressure in the cylinder is 4800.mmHg, then what is the partial pressure of each of the components?