Question 1: Convert the following measurements of pressure into the desired units of pressure. I recommend using the **Exam 3 Handout** found in Module 15 for a listing of pressure relationships.

- A patient's systolic blood pressure is 128 mmHg, what is the pressure in units of atm?

- A car tire has a pressure of 35.0 psi, what is the pressure in units of mmHg?

- The atmospheric pressure at the top of Mt. Haleakala on Maui is 0.691 atm, what is the pressure in units of torr?

- Glaucoma can be diagnosed by measuring the intraocular pressure (IOP) inside the eye. A patient has an IOP of 23.2 mmHg, what is the value in kPa?

Question 2: Using your knowledge of Boyle's Law, Charles' Law, and Gay-Lussac's Law, predict what would happen to a sample of gas in each scenario.

- When pressure decreases, the volume would _____ (increase or decrease).
- When temperature decreases, the volume would _____ (increase or decrease).
- When volume increases, the pressure would _____ (increase or decrease).
- When pressure increases, the temperature would _____ (increase or decrease).
- When temperature increases, the volume would _____ (increase or decrease).
- When volume decreases, the temperature would _____ (increase or decrease).
- When pressure increases, the volume would _____ (increase or decrease).

Question 3: A sample of xenon gas has a volume of 3.0 L at a pressure of 8.0 atm. What is the volume of the gas at a pressure of 12.0 atm?

Question 4: A sample of carbon dioxide gas has a volume of 150 mL at a pressure of 0.25 atm. What is the pressure if the volume is changed to 30. mL?

Question 5: A 25.0 L sample of neon gas at 96 K is heated to 220 K, what is the new volume?

Question 6: A 2.60 L sample of chlorine gas at 100. K is compressed to a new volume of 1.42 L, what is the new temperature?

Question 7: A sample of argon gas at 25°C and 3.2 atm is cooled to a 150 K, what is the new pressure?

Question 8: The pressure of a sample of radon gas at 212°F and 0.632 atm is reduced to 0.540 atm, what is the new temperature of the gas?

Question 9: What is the total pressure of a gas sample containing 467 mmHg of nitrogen gas, 308 mmHg of oxygen gas, and 132 mmHg of argon gas?

Question 10: What is the new pressure of an argon gas sample with an initial pressure of 2.0 atm when the volume is increased from 12.5 L to 25 L?

Question 11: What is the new temperature of an argon gas sample with an initial pressure of 2.0 atm and temperature of 330 K, when the pressure is increased to 3.6 atm?

Question 12: A helium balloon at a volume of 15.0 L and a temperature of 298K is cooled to 273 K, what is the new volume?

Question 13: If the pressure of a 15.2 L sample of xenon gas at 2.0 atm is reduced to 0.50 atm of pressure, what is the new volume?

Question 14: The total pressure of a gas sample is 870 mmHg which contains two gases. The partial pressure of one gas is 540 mmHg. What is the partial pressure of the other gas?

Question 15: For each molecule below, list all the intermolecular forces it would exhibit.

C_8H_{18} _____

CH_4O _____

Cl_2 _____

HCl _____

CH_5N _____