gas law practice test (Homework)

1.
As the temperature of a gas increases the average speed of its molecules

2.
Which of the following represents the highest kinetic energy state?

3.
Comparing two gases with different molar masses, the gas with the greater molar mass has which of the following properties? (Select all that apply.)

4.
Calculate the number of liters of 4.70 mol of nitrogen gas at STP.

5.
Convert 500. mm Hg to atmospheres.

6.
A canister contains the following gases at the following pressures: oxygen gas at 760 mmHg, carbon dioxide gas at 0.24 atm, and nitrogen at 74 kPa. What is the total pressure inside this canister?

7.
What is the pressure in atmospheres of 9.00 g of N_2 in a 480. mL container at 58.5°C?

8.
The average kinetic energy of a sample of gas molecules MUST increase under which of the following conditions?

9.
The Kinetic Molecular Theory assumes which of the following is true about an ideal gas? (Select all that apply.)

10.
What is the final pressure in the container if 120. mL of nitrogen gas at 700. mm Hg is expanded to 705 mL? Assume the temperature and the amount of gas are held constant.

11.
What is the final volume of 915 mL of hydrogen gas at 375 mm Hg if the pressure is increased to 900. mm Hg? Assume the temperature and the amount of gas are held constant.

12.
What is the final volume of 310. mL of oxygen gas at 36.0°C if the gas is heated to 173°C? Assume the pressure and the amount of gas are held constant.

13.
What is the final pressure of 205 mm Hg of argon gas at 68.5°C if the gas is heated to 221°C? Assume the volume and the amount of gas are held constant.

14.
To what Celsius temperature must 16.0 mL of methane gas at 43.0°C be changed so the volume will be 73.0 mL? Assume the pressure and the amount of gas are held constant.

15.
What is the molar mass of a gas if 1.80 g occupy 660. mL at 645 mm Hg and 34.5°C?

16.
A sample of propane C_3H_8 was collected by displacement of water. The atmospheric pressure (barometric pressure) was 760.6 mm Hg. The vapor pressure of water at 25.0°C was 23.8 mm Hg. What was the partial pressure of the propane?

17.
At the same temperature and pressure, which of the following gases has the highest rate of diffusion?

18.
If the rate of diffusion of gas A is twice the rate of diffusion of gas B, which of the following is true?

19.
The rate of diffusion of methane gas, CH_4, is one-half the rate of diffusion of an unknown gas under the same conditions of temperature and pressure. What is the molar mass of the unknown gas? Enter your answer to 3 significant figures.