Gas Laws 2

Name: _____

1) A constant volume of gas is heated from 25 $^{\circ}$ C to 150 $^{\circ}$ C. The initial pressure was 380 torr. What is the final pressure?

2) A gas is kept at constant pressure, and the volume is increased from 18 cm³ to 50 cm³. The final temperature was measured to be 236 ^oF. What was the initial temperature, in Kelvin?

3) A 13 L sample of oxygen gas has a pressure of .79 atm. What will be the new volume if the pressure is increased to 500 kPa?

4) A 30 L sample of gas contains 1.3 moles of nitrogen gas. If more nitrogen gas is added to the sample, and the sample increases in volume to 42 L, what is the new number of moles of gas in the sample?

5) A 25.0 L sample of oxygen gas is cooled from 300 K to 241 K, while changing the pressure from 300 torr to 1000 torr. What is the new volume of the gas?

6) A gas at constant pressure is cooled to a temperature well below the freezing point of water. The initial volume was 90.0 ml. The temperature started at 50 $^{\circ}$ C, and was cooled to -50 $^{\circ}$ C. What was the final volume of the gas?

7) A 2.0 L balloon is put in a bell jar at a pressure of 745 mmHg. The pressure is decreased and the volume of the balloon changes to 6.2 L. What is the final pressure in the bell jar?

8) A mixture of gases contains 72 % N_2 , 22 % O_2 and 6% Ne. What are the partial pressures of each of the gases if the total pressure is 254 kPa?

9) A 42.4 L sample of Ar gas at 75 $^{\circ}$ C is changed to STP. The new volume of the gas is 25.5 L. What was the original pressure of the gas?

10) A gas at constant volume is cooled to a final temperature of 76 K. The initial pressure was 76.0 kPa and the final pressure was 100 mm Hg. What was the initial temperature?

Answers: 1) 539 torr 3) 2.1 L 5) 6.0 L 6) 62.1 mL 10) 433 K