Worksheet - Mixed Gas Law Worksheet   **SHOW ALL WORK FOR ALL PROBLEMS**
                                                       1.0 atm = 101.3 kPa = 760 mmHg   And 0^{0}C = 273 K

Change the following units: 359 kPa = _____ atm 10^{0}C = _____ K 6.2 atm = _____ kPa 10K = _____ ^{0}C

For the rest of the problems: **First** identify each number with **P, V, or T**. **Second** state **whose** law you are using, **Third** – show the equation, **Fourth** solve the problem, and **Fifth** - circle your final answer - and make sure you don't forget your units!!!

1. The gas in a sealed can is at a pressure of 3.00 atm at 25^{0}C. A warning on the can tells the user not to store the can in a place where the temperature will exceed 52^{0}C. What would the gas pressure in the can be at 52^{0}C? **(3.27 atm)**

2. A sample of hydrogen exerts a pressure of 0.329 atm at 47^{0}C. The gas is heated 77^{0}C at constant volume. What will its new pressure be? **(0.360 atm)**

3. A sample of neon gas occupies a volume of 752 mL at 25^{0}C. What volume will the gas occupy at standard temperature if the pressure remains constant? **(689 L)**

4. A sample of oxygen gas has a volume of 150 mL when its pressure is 440 mmHg. If the pressure is increased to standard pressure and the temperature remains constant, what will the new gas volume be? **(86.8 mL)**

5. Ralph had a helium balloon with a volume of 4.88 liters at 150 kPa of pressure. If the volume is changed to 3.15 liters, what would be the new pressure in atm? **(2.29 atm)**

6. 5.36 liters of nitrogen gas are at -25^{0}C and 733 mm Hg. What would be the volume at 128 ^{0}C and 1.5atm? **(5.57 L)**

7. At constant temperature, 2 L of a gas at 4 atm of pressure is expanded to 6 L. What is the new pressure? (Do this one conceptually and not algebraically.)**(1.33 atm)**

8) 2.00 L of a gas is at 740.0 mmHg pressure. What is its volume at standard pressure? **(1.95 L)**

9) A gas is collected and found to fill 2.85 L at 25.0 ^{0}C. What will be its volume at standard temp? **(2.61 L)**

10) 10.0 ml of a gas at 75.6 kPa & 60.0^{0}C is to be corrected to correspond to the volume it would occupy at STP. **(6.12m L)**

11) A chemist collected 56.1 mL of gas in an open manometer. The next day, the chemist noted that the volume had changed to 57.9 mL and the barometer reading was 99.4 kPa. The temperature had not changed. What had been the barometer reading on the previous day when the gas was collected? **(103 kPa)**

12) A glass sphere is filled to full volume with a gas. The pressure of the gas inside the sphere is 30.0 atm, and the temperature is 25.0^{0}C. The sphere is taken outside on a cold day. The temperature of the gas decreases to 10.0^{0}C. What is the new pressure of the gas? Assume that the volume is constant. **(28.5 atm)**

13) The gas pressure in an aerosol can is 151.6 kPa at 25.0^{0}C, what would the pressure be inside the can at 300.0^{0}C? **(292 kPa)**

14) The volume of a gas is 654 mL at 6.0^{0}C and 65.3 kPa, what is the volume at 4.0^{0}C and 108.7kPa. **(690 mL)**

15) A tank for compressed gas has a maximum safe pressure limit of 825 kPa. The pressure gauge reads 388 kPa when the temperature is 24.0^{0}C. What is the highest temperature the tank can withstand safely? **(632 K)**

16) A gas has a volume of 3.04 X 10^3 m^3 at 12.0C and a pressure of 99.7 kPa. What pressure will cause the gas to have a volume of 3.25 X 10^3 m^3 at 25.0^{0}C? **(97.5 kPa)**

17) At STP, the volume of a gas is 325 mL. What volume does it occupy at 20.0^{0}C and 93.3 kPa? **(379 mL)**

18) A gas occupies a volume of 458 mL at a pressure of 1.01 atm and temperature of 295 K. When the pressure is changed, the volume becomes 477 mL. If there has been no change in temperature, what is the new pressure? **(.970 atm)**

19) A tube of mercury at a room temperature of 22.4 ^{0}C has a volume of 10.6 mL between the sealed end of the tube and the mercury. The sun rises and shines through a window on the tube and warms it to 27.8 ^{0}C. If the atmospheric pressure remains constant, what is the new volume between the sealed end of the tube and the mercury? **(10.8 mL)**

20) If a helium-filled balloon has a volume of 3.40 L at 25^{0}C and 120 kPa, what is its volume at STP? **(3.7 L)**