**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 11/28/22**

**CH 111 Workshop 9 – Chapter 9**

1. A 1.00 L mixture of helium, neon, and argon has a total pressure of 662 mmHg at 298 K. If the partial pressure of helium is 341 mmHg and the partial pressure of neon is 112 mmHg, what mass of Argon is present in the mixture.
2. In the following reaction, 4.58 L of was formed at 745 mmHg and 308 K. How many grams of must have been decomposed?
3. 2.00 g of a gas with the empirical formula of NO2 occupies a volume of 531 mL at 1.00 atm and 298 K. What is the molecular formula for the gas?
4. What is the root mean squared velocity (in m/s) of water vapor at ?
5. Which of the following gases would you expect to deviate most from ideal behavior under conditions of high pressure: , , or ? Explain.
6. A flask at room temperature contains exactly equal amounts (in moles) of nitrogen and xenon.
   1. Which of the two gases exerts the greater partial pressure?
   2. The molecules or atoms of which gas have the greater velocity?
   3. The molecules of which gas have the greater average kinetic energy?
7. The mass of an evacuated 255 mL flask is 143.187 g. The mass of the flask filled with 267 torr of an unknown gas at 25 is 143.289 g, Calculate the molar mass of the unknown gas.
8. A piece of dry ice (solid carbon dioxide) is allowed to sublime (convert from solid to gas) into a large balloon. Assuming that all of the carbon dioxide ends up in the balloon, what will be the density of the carbon dioxide gas at a temperature of 22 and a pressure of 742 mmHg?
9. A high-altitude balloon is filled with of hydrogen gas at a temperature of 21 and a pressure of 745 torr. What is the volume of the balloon at a height of 20 km, where the temperature is and the pressure is 63.1 torr?