

Name: _____
Hour: _____ Date: _____

Chemistry: *Density of Gases*

Solve each of the following problems, being sure to show your work and include all proper units.

1. A sample of gas has a density of 0.53 g/L at 225 K and under a pressure of 108.8 kPa. Find the density of the gas at 345 K under a pressure of 68.3 kPa.
2. A sample of gas with a mass of 26 g occupies a volume of 392 L at 32°C and at a pressure of 0.95 atm. Find the density of the gas at STP.
3. A gas sample has a density of 1.77×10^{-4} g/L when the temperature is 15°C and the pressure is 780 mm Hg. Find the density of the gas at STP.
4. What is the mass of a 3.00 L sample of a gas if this volume was measured at 40°C and 99.2 kPa? Assume that the density of the gas at 20°C and 101.3 kPa is 1.43 g/L.
5. A sample of gas has a volume of 2.68 L when the temperature is -54°C and the pressure is 195.0 kPa. If the density of the gas is 0.322 g/L at STP, find the mass of the sample.

Answers: 1. 0.217 g/L 2. 0.078 g/L 3. 1.82×10^{-4} g/L 4. 3.93 g 5. 2.07 g