Pre-AP Chemistry
Unit 17—Gas Laws

Molar Mass of a Gas
Density of a Gas

1. A gas at 67 ^{o}F and 324 kPa has a mass of 4.15 grams and volume of 224 mL. What is the molar mass of the unknown gas?

2. What is the density of nitrogen gas that had a pressure of 962 mm Hg and 325 ^{o}C?

3. A series of measurements are made in order to determine the molar mass of an unknown gas. First, a large flask is evacuated and found to have a mass of 134.567 grams. Then, it was filled with the unknown gas at a pressure of 735 torr at 31 ^{o}C and to 936 mL. It was reweighed, and its mass is now 137.456 grams. What is the molar mass of the unknown gas?

4. When calcium carbonate is heated to extreme temperature, it can produce a gaseous calcium oxide. If the reaction was heated to a temperature of 400 K and the pressure in the laboratory room was 978 torr, what is the density of the calcium oxide at the completion of the reaction?