

Name _____

Chapter 11 Homework 2

1. On hot days, you may have noticed that potato chip bags seem to “inflate”, even though they have not been opened. If I have a 265 mL bag at a temperature of 21 °C, and I leave it in my car which has a temperature of 55 °C, what will the new volume of the bag be?

2. A gas takes up a volume of 25.6 liters, has a pressure of 2.13 atm, and a temperature of 299 K. If the temperature is raised to 355 K and the pressure lowered to 1.52 atm, what is the new volume of the gas?

3. If I have 2.95 L of gas at a pressure of 5.11 atm and a temperature of 52 °C, what will be the temperature of the gas if I decrease the volume of the gas to 2.45 L and decrease the pressure to 3.02 atm?

4. What is the volume in liters of 3.2 moles of nitrogen gas at a temperature of 323 K and a pressure of 650 torr?

5. How many moles of oxygen gas (O_2) are contained in a volume of 2.70 L at 2.2 atm and a temperature of 15 °C?

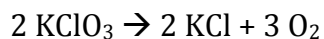
b. How many grams would this sample of oxygen gas (O_2) weight?

6. How many moles of NH_3 gas are in a 18.9 L of container at 31.0 °C and 97.97 kPa?

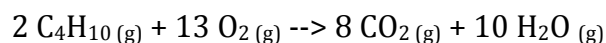
b. What is the mass of the NH_3 ?

7. If 255.0 grams of oxygen gas(O_2) are put in a 4.50 L container at 35.1 °C, what will be the pressure, of the gas in atm?

8. Oxygen gas (O_2) is generated in the laboratory by the decomposition of potassium chlorate. What volume of O_2 at 1.25 atm and 284 K is generated from 1.33 g of $KClO_3$ in the reaction:

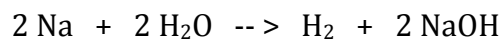


9. Butane (C_4H_{10}) is a fuel used in many lighters. The reaction is as follows:



If 13.6 L of butane are reacted at STP, how many grams of carbon dioxide are formed?

10. How many liters of H_2 at 23 °C and 733 mm Hg are released by the reaction between 1.98 grams of Na water by the following equation? Assume water is in excess



11. A sample of gas with a mass of 21.3 g is in a vessel with volume 7.73 L at 0.880 atm and 302 °C. What is the molar mass of the gas?

12. A sample of a halogen gas has a mass of 0.239 g and exerts 601 torr at 140 °C in a 100 mL flask. Calculate the molar mass of the halogen.