

The Ideal Gas Law 2

Name: _____

- 1) What is the density of carbon dioxide gas at standard temperature and pressure?
- 2) A common, unknown gas has a density of 1.25 g/L at conditions of 14.9 psi and 3.5 °C, What is the molar mass of the substance?
- 3) Determine the density of carbon tetrachloride gas when placed in a balloon at 72 °F and 745 mm Hg.
- 4) At what pressure is a tank of He when the temperature of the tank is 295 K and the density of the gas is 4.2 g/L?
- 5) How many grams of oxygen gas is placed in a container with a pressure of 455 kPa, a temperature of 305 K and a volume of 871 mL?
- 6) In performing an experiment at 25 °C and 755 mm Hg, a student discovers that 0.468 grams of an unknown gas is confined to a 250 mL flask. What is the molar mass of the gas?
- 7) At what pressure would a sample of sulfur dioxide have a density of 5.15 g/L if the temperature of the gas is 30 °C?

8) When 15.0 g of solid zinc and excess phosphoric acid (H_3PO_4) are mixed, a gas is produced. If the reaction takes place in a room where the pressure is 725 torr and 21.0°C , what volume of gas should be produced?

Equation:

9) Liquid water can be decomposed into its constituent elements using electricity. If 4.5 L of oxygen is produced when the temperature is 310 K and the pressure is 95 kPa, then what mass of water has been decomposed?

Equation:

10) When solid sodium is placed in liquid water, it produces soluble sodium hydroxide and hydrogen gas. When a 150 g sample of sodium is placed in water, the gas produced has a volume of 41.1 L and a temperature of 22°C . What pressure was the gas collected at?

Equation:

Answers:

1) 1.96 g/L

3) 6.23 g/L

6) 46.1 g/mol

8) 5.80 L

10) 1.92 atm