Chapter 10: Gases

What Gas law has these conditions?

_____: For a given mass of gas at a constant temperature, the volume of a gas varies inversely with pressure.

_____: The volume of a fixed mass of gas is directly proportional to its Kelvin temperature if the pressure is kept constant.

_____: The volume of a fixed mass of a gas is directly proportional to its absolute temperature.

_____: The volume of a gas at constant temperature and pressure is directly proportional to the number of moles of the gas.

What is the Combined Gas Law formula?

What's the mole fraction of F_2? Given: 0.35 mol F_2 + 0.25 mol H_2 + 0.65 mol CO_2 = 1.25 mol

A submarine with a volume of 1.2×10^5 L has an internal pressure of 1.0 atm and an internal temperature of 15° C. If the submarine descends to a depth where the pressure is 150 atm and the temperature is 3.0° C, what will the volume of the gas inside be if the hull of the submarine breaks?

At what temperature will 5.00 g of Cl_2 exert s pressure of 900. Torr at a volume of 750. mL?

Ammonia is often formed by reacting nitrogen and hydrogen gases. How many liters of ammonia gas can be formed from 24.5 L of hydrogen gas at 93.0° C and a pressure of 33.9 kPa?

A container with two gases, helium and argon, is 30.0% helium. Calculate the partial pressure of helium and argon if the total pressure inside the container is 4.00 atm

A sample of nitrogen gas (N_2) is contained in a 5.00 L container at a temperature of 300 K and a pressure of 2.00 atm. Calculate the density of the nitrogen gas.

Automobile air bags are inflated by nitrogen gas generated by the rapid decomposition of sodium azide, NaN_3:

$$2\ NaN_3\ (s) \rightarrow 2\ Na\ (s) + 3\ N_2\ (g)$$
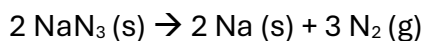
If an air bag has a volume of 36 L and is to be filled with nitrogen gas at 1.15 atm and 26.0° C, how many grams of NaN_3 must be decomposed?