

CHAPTER 4 (Basic Chem) WORKSHEET OVER GAS LAWS

1. A balloon is filled with 30 L of helium at a pressure of 745 mm of Hg. What is the volume of the balloon in liters when it rises to an altitude where the pressure is only 190mm of Hg? (Assume temperature remains constant.)
2. A given mass of air has a volume of 6.2 L at a pressure of 113 kPa. What volume in ml will it occupy at 25.3 kPa, if the temperature is held constant?
3. At STP conditions a given mass of gas has a volume of 1.5 L. What pressure (kilopascals) would the gas have to be under to occupy a volume of 250 ml? Temperature is held constant.
4. Five liters of gas at 50°C are warmed to 100°C. What is the new volume in milliliters if the pressure remains constant?
5. If 0.5 L of gas at -10°C are expanded to a volume of 1.32 liters. What is the new temperature for this gas in Kelvins if pressure is held constant?
6. A gas at 50°C and a pressure of 99,000 Pa is cooled to a temperature of 30°C, what is the new pressure in atmospheres?
7. At a temperature of -31°C, CO₂ has a pressure of 500 mm of Hg. What is the Kelvins temperature of the gas if the pressure is increased to 800 mm of Hg?
8. What is the volume of gas in liters at 2.0 atm and 30°C, if the original volume was 0.35 L at 3.5 atm and 130°C?
9. At a pressure of 788 mm of Hg and 24°C, a certain gas has a volume of 350 ml. What will be the volume in liters of this gas at STP conditions?