

**Directions:** Using Boyle's Law, complete the following calculations on a separate sheet of paper, be sure to attach this sheet to your answers. Must show **ALL WORK** to receive credit.

- 1) A gas occupies 12.3 liters at a pressure of 40.0 mm Hg. What is the volume when the pressure is increased to 60.0 mm Hg?
- 2) A gas occupies 1.56 L at 1.00 atm. What will be the volume of this gas if the pressure becomes 3.00 atm?
- 3) A gas occupies 11.2 liters at 0.860 atm. What is the pressure if the volume becomes 15.0 L?
- 4) Convert 350.0 mL at 740.0 mm of Hg to its new volume at standard pressure.
- 5) Convert 273.15 mL at 166.0 mm of Hg to its new volume at standard pressure.
- 6) When the pressure on a gas increases, will the volume increase or decrease?
- 7) A gas occupies 4.31 liters at a pressure of 0.755 atm. Determine the volume if the pressure is increased to 1.25 atm.
- 8) 400.0 mL of a gas are under a pressure of 800.0 torr. What would the volume of the gas be at a pressure of 1000.0 torr?
- 9) A gas occupies 25.3 mL at a pressure of 790.5 mm Hg. Determine the volume if the pressure is reduced to 0.804 atm.
- 10) A container of oxygen has a volume of 30.0 mL and a pressure of 4.00 atm. If the pressure of the oxygen gas is reduced to 2.00 atm and the temperature is kept constant, what is the new volume of the oxygen gas?
- 11) A 40.0 L tank of ammonia has a pressure of 8.00 atm. Calculate the volume of the ammonia if its pressure is changed to 12.0 atm while its temperature remains constant.
- 12) You are now wearing scuba gear and swimming under water at a depth of 66.0 ft. You are breathing air at 3.00 atm and your lung volume is 10.0 L. Your scuba gauge indicates that your air supply is low so, to conserve air, you make a terrible and fatal mistake: you hold your breath while you surface. What happens to your lungs? Why?
- 13) Boyle's Law deals what quantities? **a)** pressure/temperature **b)** pressure/volume  
**c)** volume/temperature **d)** volume/ temperature/pressure
- 14) 300 mL of O<sub>2</sub> are collected at a pressure of 645 mm of mercury. What volume will this gas have at one atmosphere pressure?
- 15) How much will the volume of 75.0 mL of neon change if the pressure is lowered from 50.0 torr to 8.00 torr?