

PURPOSE:

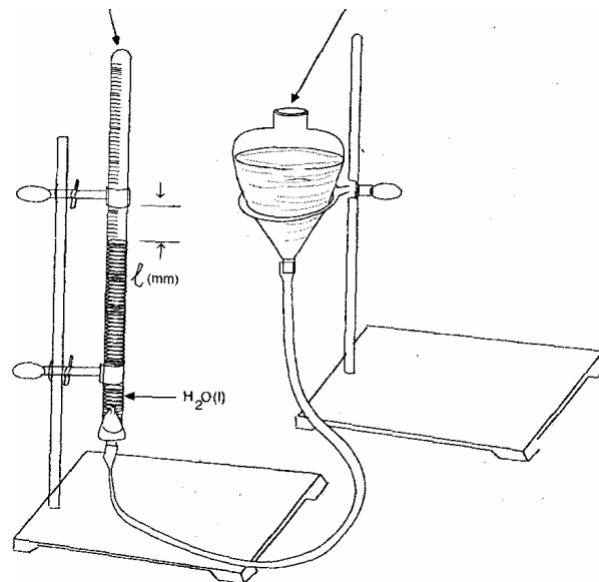
To determine what if any/ mathematical relationship exists between the volume and pressure of a fixed mass of gas at constant temperature.

EQUIPMENT

gas measuring tube	leveling bulb
rubber tubing	iron ring
utility clamps	meter
stick	

PROCEDURE

1. Set up the apparatus as shown in the figure.
2. Read and record the room temperature and pressure, P_1 in the table.
3. With the water levels in the two tubes equal measure the volume of the gas
4. Increase the pressure on the gas in tube by raising the leveling bulb until the difference in water levels greater than 0.5 meter. Record the new distance (L_2) and the new volume (V_2) in the table. L_2 is the difference between water levels. Divide this difference by 13.6 and add to the atmospheric pressure to give. P_2 .
5. Again increase the pressure on the gas in tube by raising the bulb until L is greater than 1.0 meter. Record L_3 and measure V_3 and P_3 .



- Decrease the pressure on the gas in tube by lowering the bulb until the water level in the leveling bulb is 0.5 meter below the level in the tube. Record V_4 , L_4 , and P_4 .
- Decrease the pressure by lowering the leveling bulb until $L=L_0$ meter. Record L_5 , and P_5/ V_5 .

OBSERVATIONS AND DATA

<u>Levels</u>	<u>Volumes</u>	<u>Pressures</u>
$L_1=$	$V_1=$	$P_1=$
$L_2=$	$V_2=$	$P_2=$
$L_3=$	$V_3=$	$P_3=$
$L_4=$	$V_4=$	$P_4=$
$L_5=$	$V_5=$	$P_5=$
	$P_1 \times V_1 =$	$P_1 / V_1 =$
	$P_2 \times V_2 =$	$P_2 / V_2 =$
	$P_3 \times V_3 =$	$P_3 / V_3 =$
	$P_4 \times V_4 =$	$P_4 / V_4 =$
	$P_5 \times V_5 =$	$P_5 / V_5 =$

CONCLUSION AND QUESTIONS

- Plot a graph of pressure (mmHg) and $1/V$ (mL). Determine the slope of the line.
- What do you notice about the values of your PV products and your P/V quotients? What mathematical relationship between P and V do these results indicate?