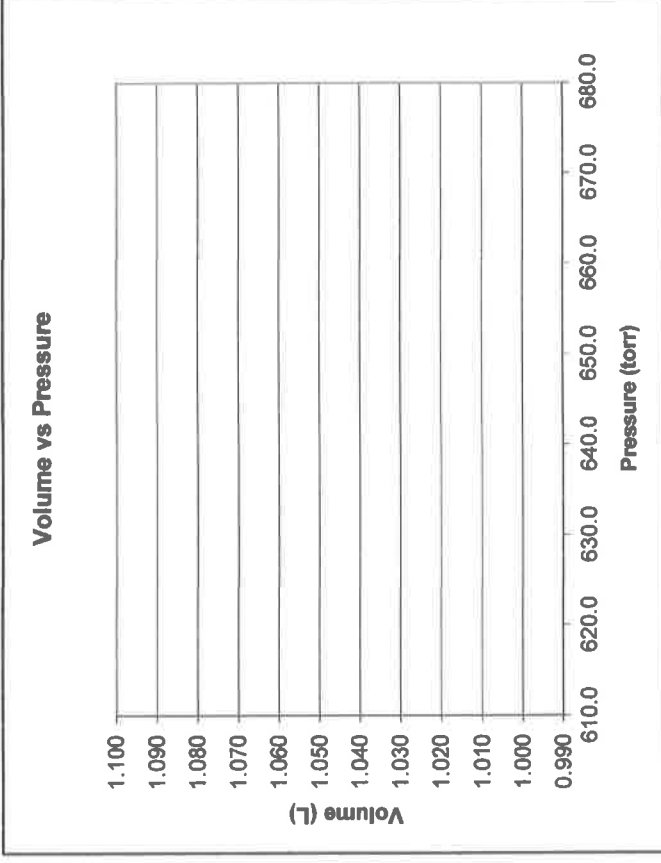


Name Date

Number of weights	Temp. T, (°C)	Temp. T, (K)	Height (cm)	Pressure P, (torr)	Volume V, (L)	Constant?
0	24.1	297				
1	24.1	297				
2	24.1	297				
3	24.1	297				
4	24.1	297				
5	24.1	297				

Note: As you fill in the height values, the volume of the cylinder will be calculated for you.

**Analysis**

1. How does the volume of the gas change with pressure?

2. What product or ratio of properties remains constant ($P \times T$, $T \times V$, P/V , V/T , etc.)? When you have decided, label the "Constant?" column with the proper term and fill in the values.

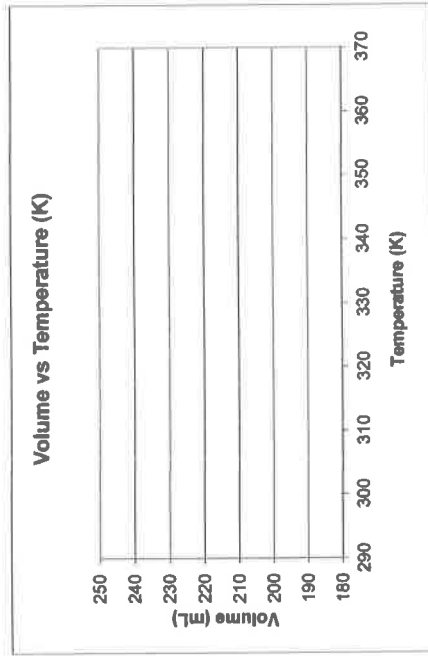
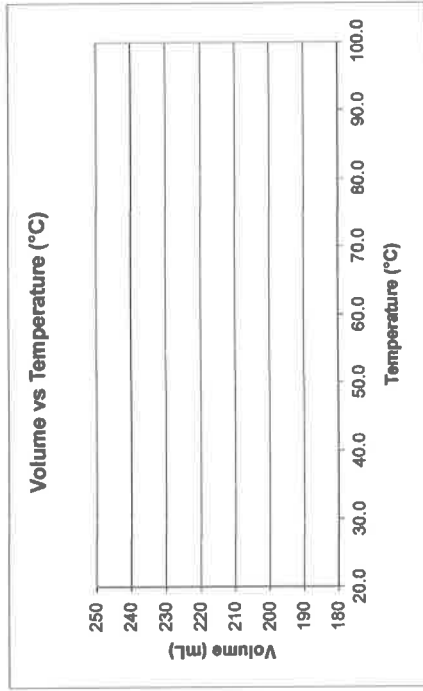
3. Derive the relationship between V_1 and V_2 , the volumes of a gas at two pressures, P_1 and P_2 .

4. If a sample of gas at 25.2°C has a volume of 536 mL at 637 torr, what will its volume be if the pressure is increased to 712 torr?

Name Date

Dial setting	Pressure P, (torr)	Temp. T, (°C)	Temp. T, (K)	Height (cm)	Volume V, (mL)	Constant?
0						
1						
2						
3						
4						
5						
6						
7						

Note: As you fill in the height and Celsius temperature values, the Kelvin temperature and the volume of the cylinder will be calculated for you.



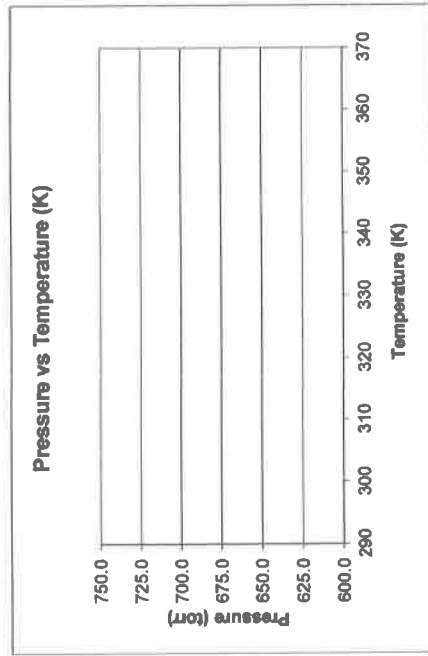
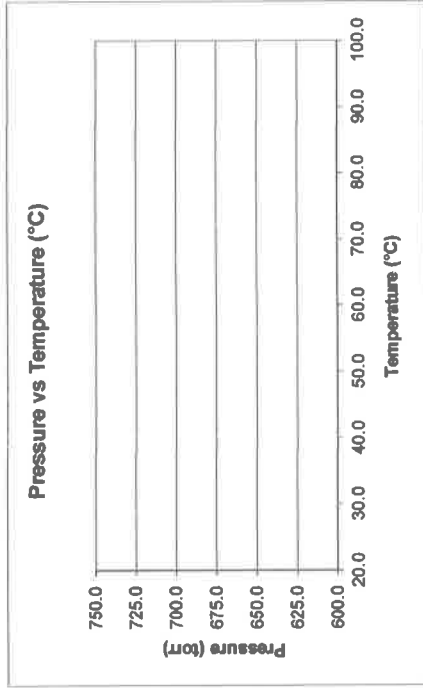
Analysis

- How does the volume of the gas change with temperature? What do you notice about the plots of V vs T(°C) and V vs T(K)?
- What product or ratio of properties remains constant (P×T, T×V, P/V, V/T, etc.)? When you have decided, label the "Constant?" column with the proper term and fill in the values.
- Derive the relationship between V1 and V2, the volumes of a gas at two temperatures, T1 and T2.
- If a sample of gas at a constant pressure has a volume of 417 mL at 32.4°C, what will its volume be if the temperature is increased to 64.8°C?

Name Date

Dial setting	Volume V, (mL)	Temp. T, (°C)	Temp. T, (K)	Pressure P, (torr)	Constant?
0	391				
1	391				
2	391				
3	391				
4	391				
5	391				
6	391				
7	391				

Note: As you fill in the Celsius temperature values, the Kelvin temperature will be calculated for you.



Analysis

- How does the pressure of the gas change with temperature? What do you notice about the plots of P vs T(°C) and P vs T(K)?
- What product or ratio of properties remains constant (P×T, T×V, P/V, V/T, etc.)? When you have decided, label the "Constant?" column with the proper term and fill in the values.
- Derive the relationship between P1 and P2, the pressures of a gas at two temperatures, T1 and T2.
- If a sample of gas in a container of fixed volume is initially at 29.3°C and 652.5 torr, what will its pressure be if the temperature is increased to 52.6°C?