

THEORY

1. The first part of the experiment is to determine the value of the universal gas constant R. This is done by measuring the volume of a gas at different temperatures and pressures. The ideal gas law, $PV = nRT$, is used to calculate R. The volume of the gas is measured using a gas syringe, and the pressure is measured using a manometer. The temperature is measured using a thermometer. The number of moles of gas, n, is determined by the mass of the gas and its molar mass.

Temperature (K)	Volume (L)	Pressure (atm)
273	0.0224	1.00
293	0.0245	1.00
313	0.0266	1.00
333	0.0287	1.00
353	0.0308	1.00

2. The second part of the experiment is to determine the molar mass of a gas. This is done by measuring the mass of a gas and its volume at a known temperature and pressure. The ideal gas law is used to calculate the number of moles of gas, and the molar mass is determined by dividing the mass by the number of moles.

EXPERIMENT



Temperature (K)	Volume (L)	Pressure (atm)
273	0.0224	1.00
293	0.0245	1.00
313	0.0266	1.00
333	0.0287	1.00
353	0.0308	1.00