CHEMISTRY 060 Name _____
LAB 11 - Mg and HCl Date _____

1Mg + 2HCl ----------▸ $MgCl_2$ + **1**H_2
mol Mg used = mol H_2 made

Data

length of Mg _____ mm

mass of Mg per metre _____ g

barometric pressure _____ mmHg

temperature (1) _____ °C

volume of H_2 (2) _____ mL

vapour pressure of H_2O at room temperature _____ mmHg

Calculations

mass of Mg used (length of Mg(mm) × mass of 1mm Mg) _____ g

moles of Mg used (3) (mass of Mg ÷ molar mass of Mg) _____ mol

pressure of H_2 (4) (barometric pressure - vapour pressure of H_2O) _____ mmHg

Fill out this column

P_1	$P_{hydrogen}$ (4)	mHg		P_2	Standard Pressure	760 mmHg
V_1	Volume of H_2 (2)	L		V_2	What we are trying to find	L
n_1	mol Mg used (3)	mol		n_2	We want the vol of 1 mol	1 mol
T_1	Room temp (1)	K		T_2	Standard temperature	273 K

$$\frac{P_1V_1}{n_1T_1} = \frac{P_2V_2}{n_2T_2}$$

solve for V_2 (which is the volume of 1 mol of gas at STP)

$$V_2 = \frac{P_1\,V_1\,n_2\,T_2}{n_1\,T_1\,P_2}$$

V_2 = _____ L

Conclusion

The volume of 1 mole of H_2 at STP is _____ L

The correct value is 22.4 L

$$\%\ \text{Error} = \frac{(\text{Theoretical value} - \text{Experimental value})}{(\text{Theoretical value})} \times 100$$

= _____