Name: _____ Section: _____

Data for Part A: Clearly show calculations on another space, (s) = 3.70 J / g °C

Mass of Mg	_____		_____
Mass of Empty Calorimeter + Lid	_____	=	_____
Mass of Calorimeter + Lid + Final Solution	_____		_____
Initial Temperature of HCl Solution	_____		_____
Final Temperature of Solution	_____		_____
Mass of Final Solution	_____		_____
ΔT of Solution	_____		_____
ΔH for reaction **Part A**, kJ/mole Mg	_____		_____

Average ΔH_A _____ kJ / mol Mg

Data for Part B: Clearly show calculations on another space, (s) = 3.70 J / g °C

Mass of Empty Calorimeter + Lid	_____	=	_____
Mass of Calorimeter + Lid + Final Solution	_____		_____
Mass of Weighing Dish	_____		_____
Mass of Weighing Dish + MgO	_____		_____
Initial Temperature of HCl	_____		_____
Final Temperature of Solution	_____		_____
ΔT of Solution	_____		_____
Mass of MgO	_____		_____
Mass of Final Solution	_____		_____
ΔH for reaction **Part B**, kJ / mole MgO	_____		_____

Average ΔH_B _____ kJ / mol MgO

Name: _____ Section: _____

Data Analysis and Calculations

Use Hess's Law and the following information to determine the heat of formation of MgO:

A. $Mg(s) + 2\ HCl\ (aq) \rightarrow H_2(g) + MgCl_2(aq)$ (**Part A**) $\Delta H_A =$ _____

B. $MgO(s) + 2\ HCl\ (aq) \rightarrow H_2O(l) + MgCl_2(aq)$ (**Part B**) $\Delta H_B =$ _____

C. Write the formation equation for liquid water

$\Delta H_f° =$ _____
Use appendix for value

D. Write the formation equation for MgO(s)

E. Use Hess's Law and the above information to calculate the heat of formation for MgO(s). Show all your work.

F. Look up the literature value of $\Delta H_f°$ for MgO and calculate the % error.

Theoretical $\Delta H_f°$ MgO _____ kJ / mol % error _____