Date_____ Section _____

Group Number ___

Others in Your Group
Last Name and (First Name or Initial)

Group Runs

$T_{average}$ of Run (°C)	_____	_____	_____	_____	_____	_____	_____	_____
$1/T_{average}$ of Run (K^{-1})	_____	_____	_____	_____	_____	_____	_____	_____
Time of Run (s)	_____	_____	_____	_____	_____	_____	_____	_____
ln (t) of Run	_____	_____	_____	_____	_____	_____	_____	_____

Sample Calculation of $T_{average}$ from _____ (Iodine T) _____ (Acetone T) _____ (Final T) = _____

Using the data in the table above, submit an Excel graph of ln time as a function of 1/T. (Your own - *not* a copy of your group's.) On the Excel graph, report the trendline with units.

Sample Calculation of E_a from the slope and R.

Prediction of Reaction Time at "Common" Temperature

Given temperature _____ Predicted ln t _____, time _____

Sample calculation of these

Calculation of relative difference(%)

Calculation of Your Group's $[I_2]_{initial}$

Calculation of Your Group's Reaction Rate

 Name_____

Determination of Rates for Each Group at "Common" Temperature

Group #	$[I_2]_{initial}$ /M	$[acetone]_{initial}$ /M	$[H^+]_{initial}$ /M	Time /s	Rate /(mole rxn/L s)
1	_____	_____	_____	_____	_____
2	_____	_____	_____	_____	_____
3	_____	_____	_____	_____	_____
4	_____	_____	_____	_____	_____

_____ _____ _____

$\ln([I_2]_{group1}/[I_2]_{group2})$ $\ln([acet]_{grp1}/[acet]_{grp3})$ $\ln([HCl]_{grp1}/[HCl]_{grp4})$

Reaction Orders from Relative Rates at Common Temperature

$\frac{Rate_1}{Rate_2}$ = _____ $\ln\frac{Rate_1}{Rate_2}$ = _____ $\frac{\ln(Rate_1/Rate_2)}{\ln([I_2]_1/[I_2]_2)}$ = _____ m = _____

$\frac{Rate_1}{Rate_3}$ = _____ $\ln\frac{Rate_1}{Rate_3}$ = _____ $\frac{\ln(Rate_1/Rate_3)}{\ln([acet]_1/[acet]_3)}$ = _____ n = _____

$\frac{Rate_1}{Rate_4}$ = _____ $\ln\frac{Rate_1}{Rate_4}$ = _____ $\frac{\ln(Rate_1/Rate_4)}{\ln([HCl]_1/[HCl]_4)}$ = _____ p = _____

Write the rate law: Rate = _____

Common Temperature Rate Constant

	Group 1	Group 2	Group 3	Group 4
Rate Constant, *k* ($_{unit}$)	_____	_____	_____	_____

_____ Sample calculation
Average rate constant, *k* of *k* for your group