EXPERIMENT/SUBJECT | DATE

LAB PARTNER | LOCKER/DESK NO. | COURSE & SECTION NO.

∴ overall reaction order =
reaction order of HCl + reaction order of Acetone
= 1 + 1 = 2

↳ units of K

Example: TRIAL 4

$$+\frac{1.11 \times 10^{-3}\ M/S}{(1.6\ M)(0.2\ M)} = K = M^{-1} \cdot s^{-1}$$

9. Answered in Discussion

## DISCUSSION.

In all of the graphs, the slope, or change of absorbance over time was negative. This can be understood by the fact that absorbance is proportional to concentration,
↳ i.e Abs ∝ K • [conc.],
↳constant
As a reaction proceeds, the concentration of reactants becomes used up into producing products, which is why the absorbance also decreases over time (proportional to concentration). Thus, the rate of reaction which is defined by the change in concentration over time, can be calculated using the equation of average rate of change over time.

↳ $\frac{y_2 - y_1}{x_2 - x_1}$ ↳ where y is absorbance or concentration, and x is time.

My K-value for two of the trials (3 + 4) were the same, while the other two were different, yet very close. Drawing the line of best fit could have been a source of error. We assumed that the rate is equal to the slope of the line, which was later used to calculate change. This method may not be 100% accurate, which is why K-value differed.
Furthermore, we also made the assumption that the change of absorbance over time is equivalent to rate, or the change of concentration over time. Although these two have a relationship of proportionality, it may not be a perfectly accurate assumption to assume they are one in the same. Also, if they do in fact have a perfectly proportional relationship, errors may have resulted from the spectrophotometer, whose accuracy may not be exact.

SIGNATURE | DATE | WITNESS/TA | DATE

NOTE: INSERT DIVIDER UNDER COPY SHEET BEFORE WRITING