

Most of these questions pertain to the experiment you performed last week.

Red food coloring also reacts with the hypochlorite ion to produce a colorless product. Red food coloring has a: **molar absorptivity,  $\epsilon = 69,900$  L/mol cm**. The dataset you will use to answer this quiz is from **Group \_\_\_\_\_** from the data set available at this website. Bring this data to the quiz already entered into a datasheet as you will not have time to enter it during the quiz.

- In your spreadsheet, display [Red] in scientific notation and select 3 places past the decimal. What is [Red] at  $t = 0$ ? Copy this number down to 3 places past the decimal followed by the exponential. Use exponential format: 1.234E-4 or 6.789E+15.
- In your spreadsheet, display  $\ln[\text{Red}]$  in number format and select 3 places past the decimal. What is the numerical value in your spreadsheet for the column for  $\ln[\text{Red}]$  at  $t = 50$  s? (Your time may vary) Copy this number down to the third decimal place. Use floating point format: Examples: 10.123 or -2.345. Do NOT use exponential format.
- In your spreadsheet, display  $1/[\text{Red}]$  in scientific notation and select 3 decimal places. What is the numerical value in your spreadsheet for the column for  $1/[\text{Red}]$  at  $t = 70$  s? (Your time may vary) Copy this number down to the third decimal place. Use exponential format: 1.234E-4 or 6.789E+15.
- What is the order of the reaction?
- What is the rate expression in terms of [Red]?
- Add a trendline to the straight-line graph. Display the equation on the graph. What is the numerical value of the rate constant?
- What is the formula for the cell in your spreadsheet for the column for  $1/[\text{Red}]$  at  $t = 70$  s? (Your time may vary) Start with the equals sign.
- What is the formula for the cell in your spreadsheet for the column for  $\ln[\text{Red}]$  at  $t = 60$  s? (Your time may vary) Start with the equals sign.
- What is the formula for the cell in your spreadsheet for the column for [Red] at  $t = 50$  s? (Your time may vary) Start with the equals sign.
- In the experiment we do today, we will be most concerned with:
  - Determine the rate constant,  $k$
  - Determine the equilibrium constant,  $K_c$
  - Determine the rate law for a 2-step mechanism
  - Determine the order of a reaction at equilibrium
  - Determine the molar absorptivity of a solution.