The following data values are the result of all groups as well as some idealized data (\*) that accompanied the lab pooled together and averaged (bottom row). The graph that follows was made using only the averages from the bottom row. Use the data below to answer the following questions.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Time (seconds)** | | | | | |
| **Amount of H2O2 Reacted (mL)** | **10** | **30** | **60** | **120** | **180** | **360** |
| 0.5 | 1.3 | 2 | 2 | 3.3 | 2.9 |
| 1.5 | 2.5 | 1.7 | 3.4 | 3.5 | 1.4 |
| 0.9\* | 1.8\* | 2.4\* | 3.1\* | 3.3\* | 3.4\* |
| 0.97 | 1.87 | 2.03 | 2.83 | 3.37 | 2.57 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time Intervals (seconds)** | | | | | | |
|  | 0 to10 | 10-30 | 30-60 | 60-120 | 120-180 | 180-360 |
| Rates\* |  |  |  |  |  |  |

*\*Use the idealized data from the table above*

1. Alter the graph below with an appropriate title and labels for both the X and Y axis (including units).
2. Describe the trend that is displayed by the logarithmic line of best fit and reaction rates that you calculated above.
3. Explain why, although the line of best fit demonstrates a clear trend, why individual data points on the scatter plot may be high or low. Account for potential sources of error that could explain this discrepancy.
4. Predict what the graph would look like if the concentration of catalase had been doubled for the experiment. Explain your prediction.

1. Predict what the graph would look like if you were to conduct the same experiment for 420 and 500 second time intervals. Explain your prediction.
2. What was the purpose of the sulfuric acid in the experiment? Relate this part of the procedure to your understanding of proteins and their structure/function.
3. The catalase enzyme we used in the lab was isolated from bovine liver. Their internal homeostatic set-point is 38.6° Celsius.
   1. Predict what the graph would look like if the temperature had been raised to 50° Celsius. Explain your prediction.
   2. Predict what the graph would look like if the temperature had been lowered to 20° Celsius. Explain your prediction.