

Name \_\_\_\_\_

### Prelab for Laboratory 2: Enzyme Catalysis

1. What is the function of catalase in cells?

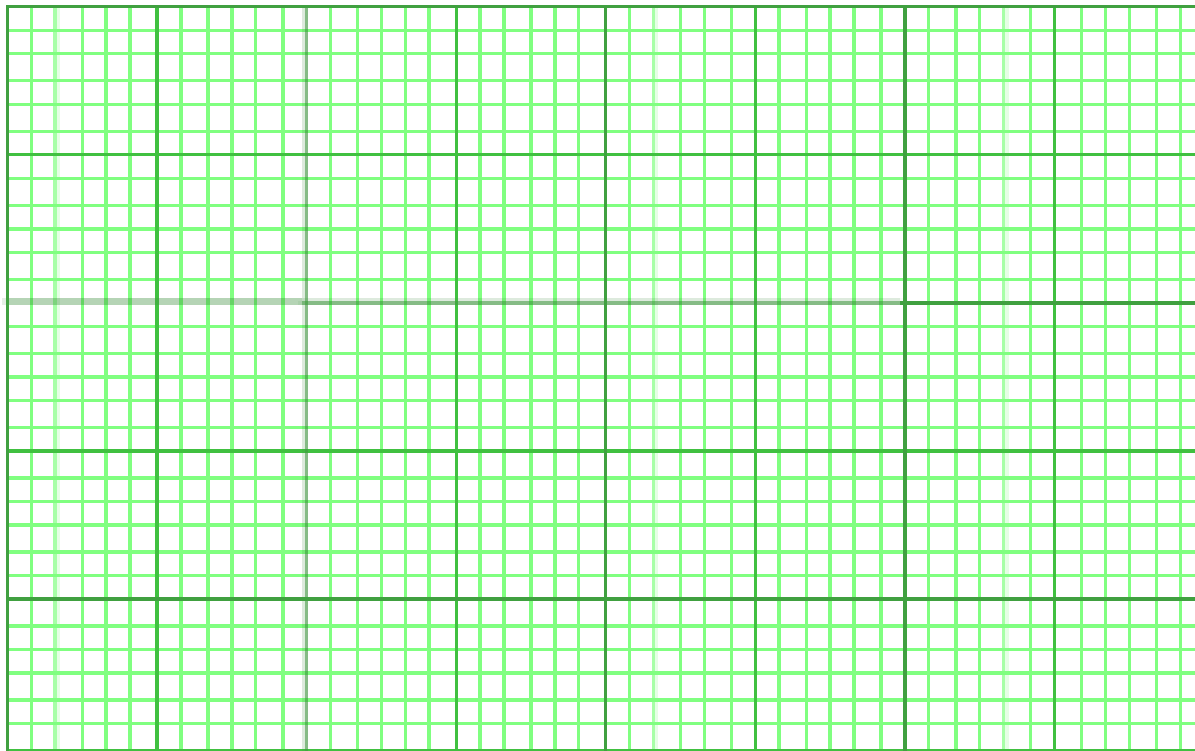
Write the equation for the reaction catalyzed by catalase.

2. In the lab procedure, what is the function of sulfuric acid?
3. How are you going to determine the amount (in mL) of hydrogen peroxide remaining after the enzyme has been allowed to act for a specified time period?
4. What is the difference between the procedure in the baseline assay (Part 2B) and that of the experimental assays (Part 2D)?
5. Why is it important to continually swirl the contents of the beaker after the catalase has been added to the hydrogen peroxide?

6. Given the following data that might be taken in Part 2D, complete the table.

KMnO <sub>4</sub>	10s	30s	60s	120s	180s	360s
A. Baseline	3.4	3.4	3.4	3.4	3.4	3.4
B. Final Reading	8.6	10.2	11.2	11.5	11.6	11.6
C. Initial Reading	6.1	8.6	10.2	11.2	11.5	11.6
D. Vol KMnO <sub>4</sub> used (B-C)						
E. Vol H <sub>2</sub> O <sub>2</sub> used (A-D)						

7. Graph of catalase activity: on the graph, plot the volume of hydrogen peroxide ( $\text{H}_2\text{O}_2$ ) used as a function of time, with title, properly labeled axes. Draw a curve as described in the introduction to the lab.



8. Determine the initial rate of the reaction by finding the slope of the fitted line, with units, for the interval 0 – 10 seconds. Use the two point form for slope. Show your work with units. Give the answer with correct units and the right number of significant figures.

9. In the same way, find the reaction rate for each of the time intervals; record below.

Time Interval (sec.)	Reaction Rate (mL $\text{H}_2\text{O}_2$ decomposed/sec)
0-10	
10-30	
30-60	
60-120	
120-180	
180-360	

Show work with units for the interval 30 – 60 seconds.

10. Explain why the reaction rate changes with time.