

Name: _____ Student ID: _____
CHEM 161 PAL Fall 2026

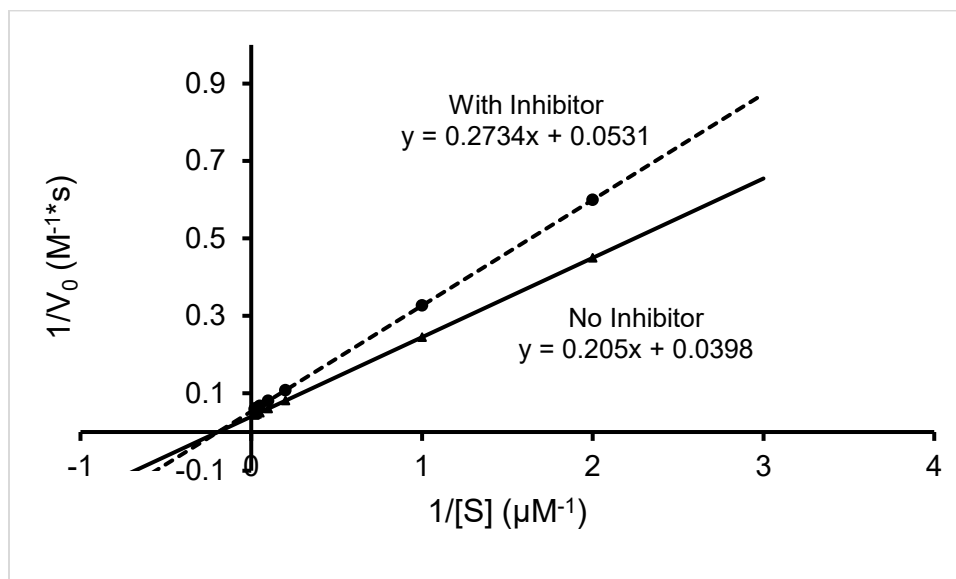
Worksheet #14: Michaelis-Menten Kinetics

1. In the table below summarize the changes in K_m and V_{max} for each type of inhibitor. Include a drawing of the Lineweaver-Burk plot for each type of inhibitor.

Inhibitor Type	Changes in K_m	Changes in V_{max}	LB Plot
Competitive			
Uncompetitive			
Mixed			
Noncompetitive			

Name: _____ Student ID: _____
CHEM 161 PAL Fall 2026

2. Using the Lineweaver-Burk plot below answer the following questions.



- a. Calculate the K_m and V_{max} in the presence of inhibitor and without inhibitor. Show your work in the space below. Write your final answers in the space provided. Include appropriate units and significant figures.

No inhibitor: $K_m =$ _____ $V_{max} =$ _____

With inhibitor: $K_m =$ _____ $V_{max} =$ _____

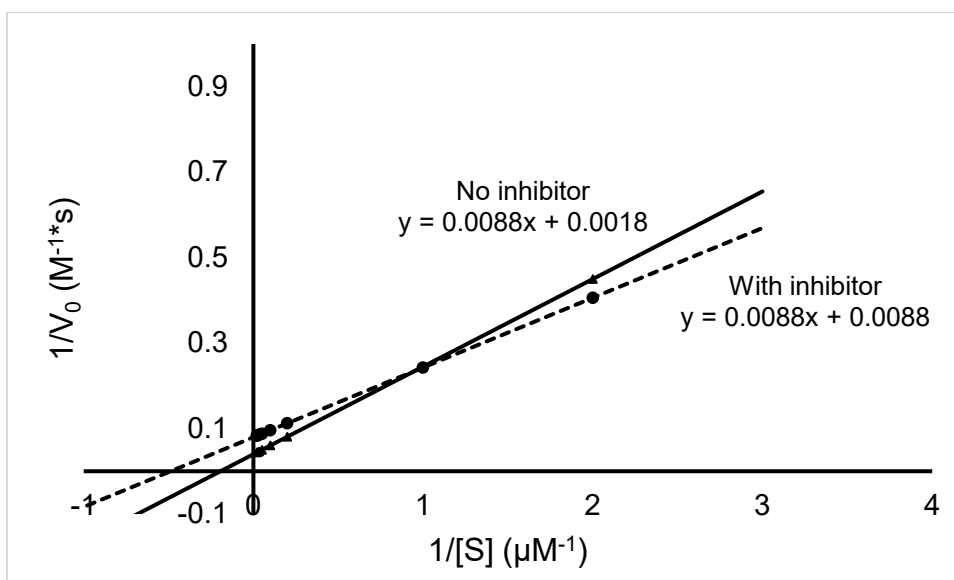
Name: _____ Student ID: _____
CHEM 161 PAL Fall 2026

- b. Based on your calculations in part a, what type of inhibitor (competitive, uncompetitive, noncompetitive, mixed) is present?

Inhibition type: _____

Explanation:

3. Using the Lineweaver-Burk plot below answer the following questions.



- a. Calculate the K_m and V_{max} in the presence of inhibitor and without inhibitor. Show your work in the space below. Write your final answers in the space provided. Include appropriate units and significant figures.

No inhibitor: $K_m =$ _____ $V_{\text{max}} =$ _____

With inhibitor: $K_m =$ _____ $V_{\text{max}} =$ _____

Name: _____ Student ID: _____
CHEM 161 PAL Fall 2026

- b. Based on your calculations in part a, what type of inhibitor (competitive, uncompetitive, noncompetitive, mixed) is present?

Inhibition type: _____

Explanation:

4. Calculate the initial velocity of an enzyme catalyzed reaction when the substrate concentration is equal to four times the K_m .

5. Calculate the $[S]$ when the initial velocity of an enzyme catalyzed reaction is equal to $\frac{1}{2} V_{\max}$.