## L1B - Kinetics Lecture Preparation



1. (a) Label the graph above describing a chemical reaction over time. Which curve represents the products? The reactants? The intermediates?
(b) What do you notice about the slope of the curve of the intermediates?
2. Write the rate law for the below reaction assuming that Step 1 is the rate-determining step. Write it assuming that Step 2 is the ratedetermining step.

Overall Reaction: $2_{3} \leftrightarrow 3 \mathrm{O}_{2}$

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\begin{aligned}
& \text { Step 1: } \mathrm{O}_{3} \underset{\mathrm{k}_{1}}{\stackrel{k_{1}}{\leftrightarrows}} \mathrm{O}_{2}+\mathrm{O} \\
& \text { Step 2: } \mathrm{O}_{3}+\mathrm{O} \xrightarrow{\mathrm{k}_{2}} 2 \mathrm{O}_{2}
\end{aligned}
$$

Think: How can we write the rate law if we don't know which step is rate-determining?

