NAME:_____ Quiz 24

$$E + S \underset{k_{-1}}{\overset{k_1}{\Leftrightarrow}} ES \xrightarrow{k_2} E + P$$

1. **Define the initial rate in terms of concentrations of V_{max}, $[S]_o$, and K_M.**
   a. $\frac{d[P]}{dt}$ =
   b. $\frac{d[ES]}{dt}$ =
   c. **Use the steady-state approximation to solve for [ES]**

   d. **Replace $\frac{(k_{-1}+k_2)}{k_1}$ with K_M.**

   e. **Write an expression for $[E]_{total}$.**

   f. **Use your expression from *(e)* to get an expression for [ES] in terms of K_M, $[E]_{total}$, and $[S]_o$.**

   g. **Plug your expression for [ES] into *(a)*.**

2. **Determine apparent values of V_{max} and K_M from the graph for each curve. Include units.**