Enzyme inhibition:

- If Vmax is constant and km increases, then it is competitive inhibition. This means that the y-intercept is constant and slope increases. To calculate ki for competitive inhibition, use $k_i = \frac{k_M[I]}{(k_{M,app} - k_M)}$.
- If Vmax decreases and km also decreases, then it is uncompetitive inhibition. This means the y-intercept increases and the slope is constant. To calculate ki for uncompetitive inhibition, use $k_i = \frac{k_{M,app}[I]}{(k_M - k_{M,app})}$ (you can also replace km with Vmax for this equation only).
- If Vmax decreases and Km is unchanged then it is non-competitive/mixed inhibition. This means the y-intercept and slope increase. To calculate ki, the use $k_i = \frac{Vmax,app[I]}{(Vmax - Vmax,app)}$.

Photochemistry- quantum yield calculations: To work out quantum yields, there are 6 easy steps to follow:

1. Calculate the energy emitted from the light source by using $E = Pt$.
2. Then calculate how much of this energy is actually absorbed by the substance by using $Eabs = E \times \%absorbed$.
3. Then you'll need to calculate the energy of one of those photons at the specified wavelength by using $E = \frac{hc}{\lambda}$.
4. Next you'll need to calculate the number of photons that were absorbed by using $Nabs = \frac{Eabs}{Energy\ of\ photon\ @\ the\ wavelength}$.
5. Next you'll calculate the number of mols decomposed of the absorbing species by using $Ndecomposed = (amount\ decomposed) \times (N_A)$.
6. Lastly, to work out overall quantum yield, use $\phi = \frac{Ndecomposed}{Nabs}$.