Graphing Equilibrium Name:

The following chemical reaction is observed and concentrations of the reactants and products are recorded over time. Some of the data is missing. Using the coefficients from the balanced equation, fill in the missing data points. Try to figure out the pattern illustrated by the data and the equation.

$$2N_2O_5 \rightarrow 4NO_2 + O_2$$

Time	$[N_2O_5]$	$[NO_2]$	$[O_2]$
0 s	1.00 M	0.00 M	0.00 M
200 s	0.88 M	0.24 M	0.06 M
400 s	0.78 M	0.44 M	?
600 s	0.69 M	?	0.16 M
800 s	0.61 M	0.78 M	?
1000 s	?	0.92 M	0.23 M
1200 s	0.48 M	1.04 M	0.26 M
1400 s	0.43 M	1.14 M	0.29 M
1600 s	?	1.24 M	0.31 M
1800 s	0.34 M	1.32 M	0.33 M
2000 s	0.30 M	?	0.35 M
2200 s	0.29 M	1.42 M	?
2400 s	0.29 M	1.42 M	?
2600 s	0.29 M	1.42 M	?
2800 s	0.29 M	1.42 M	?

1. On the same sheet of graph paper, plot three curves showing how the concentration N_2O_5, NO_2, and O_2 each change over time.

2. At what point does the reaction appear to be finished? (When does this reaction reach equilibrium)?

3. Does this reaction go to completion (does all of the reactant get used up)? **Give and cite evidence from data table.**

4. Why does the concentration of O_2 go up as time passes?

5. Why does the concentration of NO_2 go up faster than the concentration of O_2?