Notes #42

# Kinetics

1. **Kinetics: Study of the _____ or speed at which chemical reactions take place.**

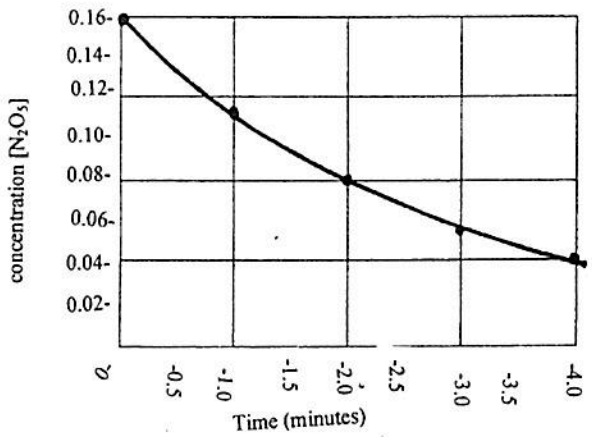
2. Rate Expressions - expressed in terms of the change in _____ of reactant or product _____/_____ per unit time.

Rate =

*** Is the rate constant throughout the course of a rxn? _____

**$2\ N_2O_5\ (g)$ ---------> $4\ NO_2\ (g)$ + $O_2\ (g)$**

| **Time (min)** | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| **$[N_2O_5]$** | 0.160 | 0.113 | 0.080 | 0.056 | 0.040 |




Point — Rate (_____)

0 min

1 min

2 min

3 min

4 min

3. Calculate the rate? TWO WAYS....
   a. AVERAGE RATE: Rate over a range of time. **$Rate_{ave}$** =

   b. INSTANTANEOUS RATE: Rate for a specific instant in time, Most common, what we are usually referring to...

   **$Rate_{ins.}$** = slope ( ) of the tangent line at a particular moment. *see data table above.*

4. Notice that the rate _____ as the rxn proceeds. WHY?

5. COLLISION THEORY:
   - Collisions cause rxns and .....