Session 1/ CH 117

14 Jan. 2014

1. Explain the difference between thermodynamics and kinetics.
2. Name 4 properties that affect the rate of reaction of homogenous mixtures.

3. Calculate the Av. Speed of the following reaction A+B 🡪 AB from 0 to 2 seconds and 2 to 4 seconds.

Change in Concentration of A

|  |  |
| --- | --- |
| Time (s) | Concentration (M/s) |
| 0 | 10 |
| 2 | 8 |
| 4 | 4 |

4. True or False: Would using the concentration change of AB per second result in the same reaction rate.

5. Write the rate formula for each species in the following reaction (write it in the way that the rate of the reaction does not depend on which species we measured):

8Fe + S8 🡪 FeS8 ex. For species S, rate formula is rate= ∆[S]/∆t.

6. What is the Units of K for the following reaction? What’s the order?

Rate= k [A][B]2

7. Use the Data from the table to determine the rate law expression.

2A + B 🡪 P

|  |  |  |  |
| --- | --- | --- | --- |
| Experiment | [A] | [B] | Initial Rate (M/s) |
| 1 | .2 | .1 | 2 \*10-2 |
| 2 | .2 | .2 | 4 \* 10-4 |
| 3 | .3 | .5 | 3\*10-2 |
| 4 | .4 | .1 | 2\*10-2 |

b. Using experiment 1, find k.

c. True or False. If 1/[B] is graphed as a function of time (t on x-axis), the graph would be linear.

d. Find concentration of B at t=2 if initial concentration of B is 2.