Session 2/ CH 117

16 Jan. 2014

1. Write the integrated rate law equation for the \_\_\_\_ order reaction where the rate of reaction is independent of changes in concentration.

2. The rate law expression of a reaction is Rate= 5\*10-3 s-1 [NO]. Find the concentration of NO at t=3 seconds if initial concentration of NO is 4 M.

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

2A + B 🡪 P

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| --- | --- | --- | --- |
| Experiment | [A] | [B] | Initial Rate (M/s) |
| 1 | .4 | .2 | 2 \*10-2 |
| 2 | .4 | .4 | 1.6 \* 10-7 |
| 3 | .6 | 1.0 | 3\*10-2 |
| 4 | .8 | .2 | 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 5.

4. Reaction M has a k value of 3\*10-2s-1. What is the t1/2 of Reaction M.

b. How long would it take for [M] to be reduced to 12.5% of the initial amount.

5. The half-life for decomposition of cyclopentene at 825 K is 241s. How long would it take for a sample of cyclopentene to decompose to 7% of the original amount.

6. Explain why increasing temperature increases the rate of reaction. If possible, use an energy distribution curve diagram to explain.