

* II-1 _____C _____NC
** II-2 _____C _____NC

*** II-3 _____C _____NC
**** II-4 _____C _____NC

Chemistry 152
Worksheet 1

Name: _____

- A. For a reaction in which A and B form C, $2 A + B \rightarrow C$, the following data were obtained for three experiments

<u>Experiment</u>	<u>Initial [A]</u>	<u>Initial [B]</u>	<u>Initial Rate</u>
1	0.30M	0.20M	$1.5 \times 10^{-3} \text{Msec}^{-1}$
2	0.60M	0.20M	$3.0 \times 10^{-3} \text{Msec}^{-1}$
3	0.30M	0.40M	$3.0 \times 10^{-3} \text{Msec}^{-1}$

- *1. (1.0 pts.) Determine the order of the reaction with respect to A and B.

The reaction is _____ order in A and _____ order in B.

- **2. (1.0 pts.) Write the expression for the rate law for this reaction.

- B. (1.0 pts.) The reaction $A + 2 B \rightarrow C$ has a rate law expression of $\text{Rate} = k[A]$. Determine the value of the rate constant, k, for this reaction if an initial $[A]=0.25\text{M}$ and initial $[B]=0.25\text{M}$ produces an initial rate of $2.5 \times 10^{-3} \text{M/s}$.

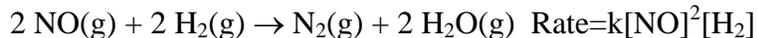
- C. The following first-order reaction has a half-life of 8.95 sec at 30°C .



- ***1. (1.0 pts.) Determine the value for the rate constant, k.

- ****2. (1.0 pts.) Determine the time required for the concentration of N_2O_5 to decrease from 3.00M to 1.56M.

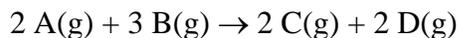
D. (3.0 pts.) Fill in the blanks for the following reaction.



This reaction is _____ order in NO, _____ order in H₂, and _____ order overall. The value of k is _____.

<u>Experiment</u>	<u>Initial [NO]</u>	<u>Initial [H₂]</u>	<u>Initial Rate</u>
1	0.10M	0.20M	2.0x10 ⁻⁴ M/sec
2	0.20M	_____	1.6x10 ⁻³ M/sec
3	_____	0.40M	3.6x10 ⁻³ M/sec

E. (2.0 pts.) Fill in the blanks for the following reaction and set of data.



<u>Experiment</u>	<u>Initial [A]</u>	<u>Initial [B]</u>	<u>Initial Rate</u>
1	0.20M	0.20M	0.15M/min
2	0.20M	0.40M	0.30M/min
3	0.40M	0.20M	0.60M/min
4	_____	0.40M	1.2M/min
5	0.80M	0.60M	_____

This reaction is _____ order in A, _____ order in B, and _____ order overall.