Name: _____ Class: _____ Date: _____ ID: A

Practice quiz Q9: Rate law

#5-4 _____/8 points

$$A + 2B \Rightarrow C$$

The equation provided is believed to be a single step reaction.

____ 1. (#5-4) The rate law for the equation provided is.
   a. Rate = K[A][B]
   b. Rate = K[A]
   c. Rate = K[A][B]^2
   d. Not able to determine because individual data is needed.

____ 2. (#5-4) What is the order of this reaction relative to A.
   a. 1
   b. 2
   c. 3
   d. not able to determine with out data.

____ 3. (#5-4) If you were to double the concentration of B the overall rate would.
   a. not be affected
   b. double
   c. triple
   d. quadruple

Complete the following

4.

$$2NO + Cl_2 \Rightarrow 2NOCl$$

Experiment	[NO]M	[Cl]M	INITIAL RATE M/s NOCl
1	0.0125	0.255	2.27E-5
2	0.0125	0.510	4.45 E-5
3	0.025	0.255	9.08 E-5

a) Using the data provided, determine the orders for all three reactants, the overall reaction order, and the value of the rate constant including units. (3 points)

Rate = K[NO]^2[Cl]^1 $\quad K = \frac{2.27E-5}{(0.0125)^2(.255)} = 0.569 \frac{L^2}{mol^2 sec}$

b) What would be the initial rate in experiment 4, which has [NO] = 0.0500M and [Cl] = 0.0255M (1 point)

c) If the Cl_2 is being removed at X rate. What is the rate at which the NO is being removed?

b) $0.569(0.05)^2(.0255) = 3.62E-5 \frac{mol}{L\,sec}$

c) $x \cdot \frac{2}{1} = 2x$

losing