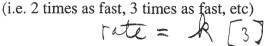
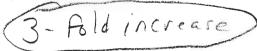
CHM 152/54 Quiz #2 25 Pts Spring 05 Name:___

Work must be shown to receive credit.

1. (4 Pts) The reaction $A + 2B + C \rightarrow \text{products}$ was found to have the rate law, rate = $k[A]^2$ [B]. While holding the concentration of A constant, the concentration of B was increased from x to 3x and the concentration of C was increased from x to 2x. Predict by what factor the rate of reaction will increase.





2. For the hypothetical reaction $A + 3B \rightarrow 2C$.

b. (3 Pts) Write rate expressions in terms of [A], [B], and [C] and then show how they can be set equal to one another.

$$rate = -\frac{\Delta[A]}{\Delta t} = -\frac{\Delta[B]}{3\Delta t} = \frac{\Delta[C]}{2\Delta t}$$

a. (2 Pts) What are the units for a first order rate constant? rate = k(A) kunits = time 3. b. (2 Pts) What are the units for a second order rate constant? Tato R [A] hunits = M. + ime

4. (8 Pts) Nitric oxide reacts with chlorine to form nitrosyl chloride, NOCl. Use the following data to determine the rate equation and the rate constant (with proper units) for the reaction.

$NO + 1/2Cl_2 \rightarrow NOCl$				rate = k [NO] [Ce]
Expt. #	[NO]	$[Cl_2]$	Initial Rate	rate = 1 [NO] [U2]
î	0.22	0.065	0.96 M/min	
2	0.66	0.065	8.6 M/min	,
3	0.22	0.032	0.48 M/min	-X & M & 6
for No un	e exp 1	+2 ra		0.66) 0.69 = 0.96
		rai	a, Kl	X
				(3) = 8.96 so $(x = 2)$
for Cl2	use Exp 1	+3 rute 1	= X [0.22]	10.060 = 0.96
701 0 2	,,,	rate 3	De Torrio	[0.032]2 0.49
gent transport and a gent and a	Oktorio e i sudicionare di Sin, intercione di Basari ed Sel Sel Sed		CARACTER ST.	$(3)^2 = 2(5=1)$
Soratelu	v ; rute =	= &[NO]2]	Ces and k	= 305 M ⁻² min ⁻¹
5. (4 Pts) The solubility of Ba(NO ₃) ₂ is 130.5 grams per liter at 0°C. How many moles of dissolved salt				
$\frac{1}{2}$ $\frac{1}$				

are present in 3.00 liters of a saturated solution of Ba(NO₃)₂ at 0°C? (molar masses: Ba 137.33, N 14.007, O 16.00)