

CHM 152  
Quiz 2

Spring 2009  
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Name Key

1.(4) Match the situation with the appropriate equation.

a.  $\ln [A]_t = -kt + \ln [A]_0$

b.  $1/[A]_t = kt + 1/[A]_0$

c.  $[A]_t = -kt + [A]_0$

d.  $\ln k = \ln A - E_a / (RT)$

c Single reactant with zero order kinetics

a Single reactant with first order kinetics

d Investigation of the effect of temperature on reaction rate

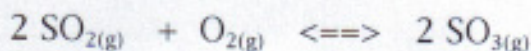
b Single reactant with second order kinetics

2.(6) Determine the value of the equilibrium constant for the reaction at 900 K. The equilibrium concentrations of each substance (at 900 K) are given. Show your work.

$[SO_2] = .0104 \text{ M}$

$[O_2] = .0052 \text{ M}$

$[SO_3] = .0296 \text{ M}$



$$K = \frac{[SO_3]^2}{[SO_2]^2 [O_2]}$$

$$= \frac{(.0296 \text{ M})^2}{(.0104 \text{ M})^2 (.0052 \text{ M})} = 1.6 \times 10^3 \text{ (M}^{-1}\text{)}$$

BONUS (2) Which has the greatest electronegativity? As S O