Quiz 3

Name _____ **Thursday, February 8, 2001**

Section (circle one) **Dan at 9:30** **Dan at 10:30** **Aimee at 9:30** **Aimee at 10:30**

1) (5 points) The following reaction has an equilibrium constant K equal to 3.07×10^{-4} at 24°C

$$2\ NOBr_{(g)} \rightleftharpoons 2\ NO_{(g)} + Br_{2(g)}$$

A mixture of $NOBr_{(g)}$, $NO_{(g)}$ and $Br_{2(g)}$ is in equilibrium in a 1 liter sealed vessel at 24°C. The partial pressure (in atm) of $NOBr_{(g)}$ is equal to that of $NO_{(g)}$. What is the partial pressure of $Br_{2(g)}$?

- over -

2) (5 points) Flourine gas forms fluorine atoms at high temperature:

$$F_{2(g)} \rightleftharpoons 2\,F_{(g)}$$

Use the following thermodynamic data to determine the equilibrium constant for this reaction at 900°C. (You may assume that ΔH and ΔS of the reaction are independent of temperature.)

R= 8.314 J/mol K

$\Delta H_f^o\,(F_{2\,(g)}) = 0$ kJ/mol; $S^o\,(F_{2(g)}) = 202.78$ J/(mol K)

$\Delta H_f^o\,(F_{(g)}) = 78.99$ kJ/mol; $S^o\,(F_{(g)}) = 158.754$ J/(mol K)