

Quiz 3

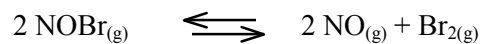
Name _____

Thursday, February 8, 2001

Section (circle one)

Dan at 9:30**Dan at 10:30****Aimee at 9:30****Aimee at 10:30**

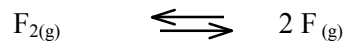
- 1) (5 points) The following reaction has an equilibrium constant K equal to 3.07×10^{-4} at 24°C



A mixture of $\text{NOBr}_{(g)}$, $\text{NO}_{(g)}$ and $\text{Br}_{2(g)}$ is in equilibrium in a 1 liter sealed vessel at 24°C . The partial pressure (in atm) of $\text{NOBr}_{(g)}$ is equal to that of $\text{NO}_{(g)}$. What is the partial pressure of $\text{Br}_{2(g)}$?

- over -

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



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.)

$$R = 8.314 \text{ J/mol K}$$

$$\Delta H_f^\circ (\text{F}_{2(\text{g})}) = 0 \text{ kJ/mol};$$

$$S^\circ (\text{F}_{2(\text{g})}) = 202.78 \text{ J/(mol K)}$$

$$\Delta H_f^\circ (\text{F}_{(\text{g})}) = 78.99 \text{ kJ/mol};$$

$$S^\circ (\text{F}_{(\text{g})}) = 158.754 \text{ J/(mol K)}$$