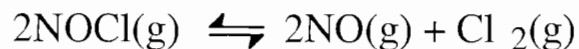
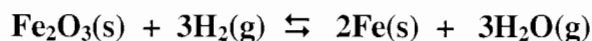


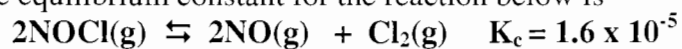
1. (6 Pts) 2.50 mol NOCl was placed in a 2.50 L reaction vessel at 400°C. After equilibrium was established, it was found that 28% of the NOCl had dissociated according to the equation: Calculate the equilibrium constant, K_c , for the reaction.



2. (3 Pts) Write the correct equilibrium constant expression for the following reaction.



3. (5 Pts) At 35°C, the equilibrium constant for the reaction below is



An equilibrium mixture was found to have the following concentrations of Cl_2 and NOCl:

$[\text{Cl}_2] = 1.2 \times 10^{-2} \text{ M}$; $[\text{NOCl}] = 2.8 \times 10^{-1} \text{ M}$. Calculate the concentration of NO(g) at equilibrium.

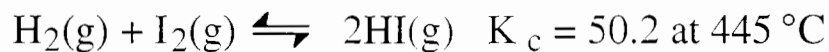
4.(4 Pts) The equilibrium constant for the reaction



is 5.0×10^4 at 25°C . What is the equilibrium constant for the reaction below?



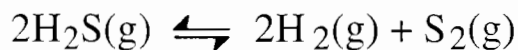
5. (3 Pts) For the reaction



if $[\text{H}_2] = [\text{I}_2] = [\text{HI}] = 1.75 \times 10^{-3} \text{ M}$ at 445°C , which one of the following statements is true?

- A. The system is at equilibrium. no concentration changes will occur.
- B. The concentrations of HI and I_2 will increase as the system approaches equilibrium.
- C. The concentration of HI will increase as the system approaches equilibrium.
- D. The concentrations of H_2 and HI will fall as the system moves toward equilibrium.
- E. The concentrations of H_2 and I_2 will increase as the system approaches equilibrium.

6. (4 Pts) On analysis, an equilibrium mixture for the reaction



was found to contain 1.0 mol H_2S , 4.0 mol H_2 , and 0.80 mol S_2 in a 4.0 L vessel. Calculate the equilibrium constant for this reaction.