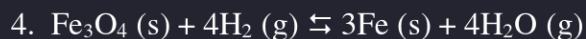
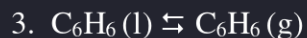
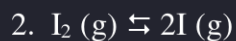


Chemistry I-H  
Gaseous Equilibrium Calculations

For exercises 1-5, write equilibrium constant expressions for the following systems in equilibrium:



6. Consider the following reaction:  $2\text{SO}_3(\text{g}) \rightleftharpoons 2\text{SO}_2(\text{g}) + \text{O}_2$   
If  $[\text{SO}_3] = 0.0160\text{ M}$ ,  $[\text{SO}_2] = 0.00560\text{ M}$ , and  $[\text{O}_2] = 0.00210\text{ M}$ , what is the  $K_C$  for this equilibrium?

7. When solid ammonium chloride is put in a reaction vessel at 323K, the equilibrium concentrations of both ammonia and hydrogen chloride are found to be 0.0660 M. Calculate  $K_C$ .  $\text{NH}_4\text{Cl}(\text{s}) \rightleftharpoons \text{NH}_3(\text{g}) + \text{HCl}(\text{g})$

8. For the following reaction, the  $K_C$  is 1.60 at 933K.  $\text{H}_2(\text{g}) + \text{CO}_2(\text{g}) \rightleftharpoons \text{H}_2\text{O}(\text{g}) + \text{CO}(\text{g})$   
Calculate the equilibrium concentration of hydrogen,  $[\text{H}_2]$ , when  $[\text{CO}_2] = 0.320\text{ M}$ ,  $[\text{H}_2\text{O}] = 0.240\text{ M}$ , and  $[\text{CO}] = 0.280\text{ M}$ .