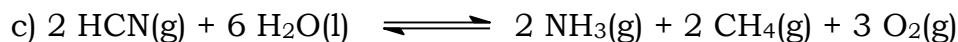
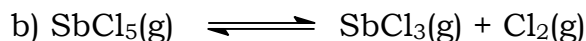
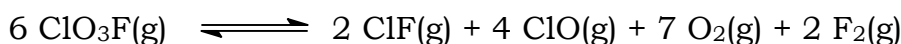


CHEM-1105**CHEMICAL EQUILIBRIUM**

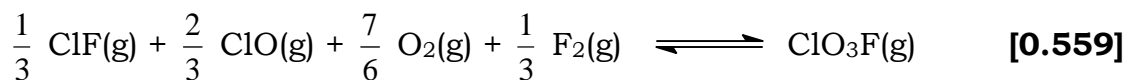
1. Write K_c expressions for the following reactions:



2. At 25°C, the K_c for the reaction given below is 32.6.



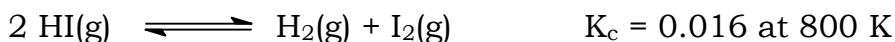
What is K_c for:



3. 0.400 mole of H_2 and 1.60 mole of I_2 were placed in a 3.00 L flask and heated. At equilibrium, 60% of the H_2 had reacted. Calculate K_c for



4. For the system:



If 1.00 mole of HI is placed in a 10.0 L container and allowed to come to equilibrium, what will be the concentrations of all the gases at equilibrium? $[\text{H}_2] = [\text{I}_2] = \mathbf{0.010 \text{ M}}$, $[\text{HI}] = \mathbf{0.080 \text{ M}}$

5. Sulfur trioxide decomposes according to the following reaction



3.50 g of SO_3 was placed in an evacuated 1.00L flask at 100.0°C. At equilibrium 43.8% of the SO_3 had decomposed. Determine K_c for the equilibrium reaction. $\mathbf{[5.82 \times 10^{-3}]}$

6. At a high temperature, 0.300 moles of CH_4 was placed in a 10.0 L reaction vessel and allowed to reach equilibrium.



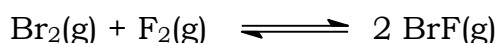
At equilibrium the concentration of C_2H_2 was measured to be 0.0130 mol/L. Determine the value of K_c . **[0.0482]**

7. For the equilibrium



0.80 mole of HI, 0.26 mole of H_2 , and 0.26 mole of I_2 were placed in a 2.0 L container at 800°C . Calculate the concentrations of all three gases at equilibrium. **[HI] = 0.60 M, [H₂] = [I₂] = 0.03 M**

8. The equilibrium constant, K_c , for the reaction



Is 55.3. What are the equilibrium concentrations of all the gases if the initial concentrations of Br_2 and F_2 were both 0.180 mol/L?

[Br₂] = [F₂] = 0.038 M, [BrF] = 0.284 M

9. Bromine chloride, BrCl , a reddish gas with properties similar to Cl_2 is formed according to the reaction:



What % of the chlorine has reacted at equilibrium if 1.00 mole of Cl_2 and 1.00 mole of Br_2 were placed in a 5.00 L flask and allowed to reach equilibrium? **[10%]**

10. When 0.40 mole of PCl_5 is placed in a 10.0 L container, an equilibrium is established in which 0.25 mole of Cl_2 is present. Calculate K_c for the following reaction. **[0.0417]**

