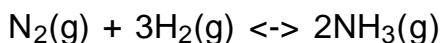
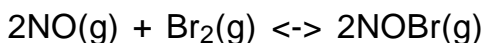


## Chem12 Equilib Calculations : Quiz-100

1) At equilibrium,  $[N_2] = 0.65 \text{ mol/L}$  and  $[H_2] = 0.85 \text{ mol/L}$ . What is the equilibrium  $[NH_3]$  for the following reaction if  $K_{eq} = 0.017$  ?

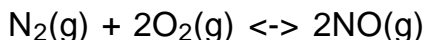


2) Consider the following reaction :



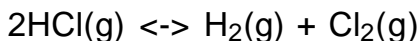
When 0.30 mol of NO and 0.30 mol of  $Br_2$  are placed in a 1.0 L container, it is found that the equilibrium  $[NOBr] = 0.20 \text{ M}$ . Calculate the value of  $K_{eq}$ .

3) Consider the following reaction :



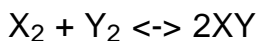
The equilibrium concentrations are  $[N_2] = 8.0 \text{ M}$ ,  $[O_2] = 2.0 \text{ M}$ ,  $[NO] = 4.0 \text{ M}$ . Find the equilibrium constant.

4) The equilibrium constant for the reaction :



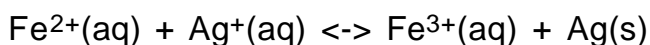
is 0.020. If 2.0 mol of HCl are placed in a 1.0 L vessel, what will be the equilibrium concentrations of the three gases ?

5) Gas  $X_2$  reacts with gas  $Y_2$  according to the equation :



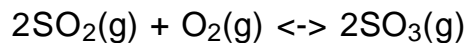
0.50 mol each of  $X_2$  and  $Y_2$  are placed in a 1.0 L vessel and allowed to come to equilibrium at a given temperature. The equilibrium concentration of XY is found to be 0.025 mol/L. What is the equilibrium constant for this reaction ?

6) Given the reaction :



The equilibrium constant is 3.0. If, at equilibrium, the concentration of  $\text{Fe}^{2+}$  is 0.20 M and the concentration of  $\text{Ag}^+$  is 0.30 M, find the concentration of  $\text{Fe}^{3+}$ .

7) Given the reaction :



The initial concentrations of all three gasses is 0.020 M. At equilibrium the concentration of  $\text{SO}_2$  is found to be 0.0080 M. Find the equilibrium concentrations of  $\text{O}_2$  and  $\text{SO}_3$ .

Answers : 1) 0.082 M, 2) 20., 3) 0.50, 4) 1.6, 0.22, 0.22, 5) 0.0026, 6) 0.18 M, 7) 0.014 M, 0.032 M.