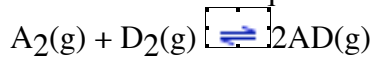


ACA Part 3 for Extent of a
Chemical Reaction

Name(s) with Lab section in Group

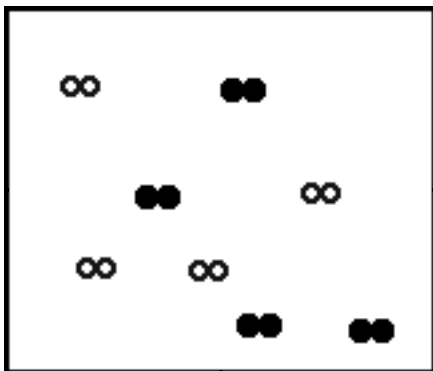
Calculating the Equilibrium
Concentration of all Species

1. Below are 1.0 L containers for the initial and equilibrium condition for the reaction,

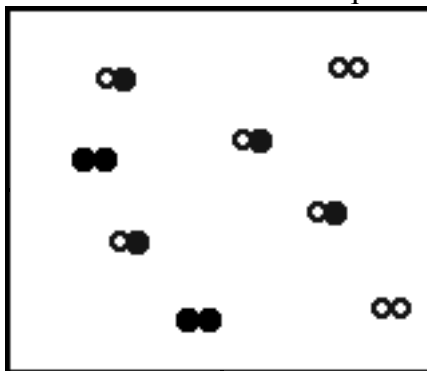


Calculate the magnitude of the equilibrium constant for the reaction.

Container before reaction started

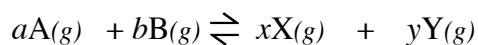


Container after reaction achieves equilibrium

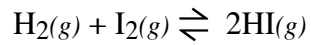


Show work:

2. Setup the ICE table for the following general chemical equation. (Assume the reaction proceeds from left to right to establish equilibrium.)



3. The equilibrium constant, K_p , for the reaction



is 0.0202. If the initial partial pressure of $\text{H}_2 = \text{I}_2 = 0.350$ atm, calculate the equilibrium partial pressures of all species.

4. The equilibrium constant, K_c , for the reaction



is 33.3 at 760 °C. If 0.400 mol of PCl_5 are placed in a 2.00 liter container, calculate the equilibrium concentrations of all species.

5. The equilibrium constant, K_c , for the reaction



is 33.3 at 760 °C. If 0.400 mol of PCl_5 and 1.0 mol of Cl_2 are placed in a 2.00 liter container, calculate the equilibrium concentrations of all species.