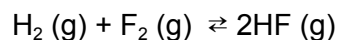
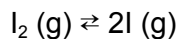


Equilibrium and Solubility Equilibria

1. Calculate the solubility product constant for lead(II) chloride, if 50.0 mL of a saturated solution of lead(II) chloride was found to contain 0.2207 g of lead(II) chloride dissolved in it.
2. Initially, a mixture of 0.100 M NO, 0.050 M H₂, 0.100 M H₂O was allowed to reach equilibrium (initially there was no N₂). At equilibrium the concentration of NO was found to be 0.062 M. Determine the value of the equilibrium constant, K_c, for the reaction
3. Calculate the solubility of solid CaF₂ (K_{sp} = 4.0 × 10⁻¹¹) in a 0.025 M NaF solution.
4. For the reaction below at 25°C, K_C = 115. If 0.050 moles of each reactant and 0.600 moles of product are placed in a 1.00 L flask, what are the equilibrium concentrations?



5. In a study of halogen bond strengths, 0.50 mol of iodine gas was heated in a 2.5 L vessel, and the following reaction occurred



- a. Calculate [I₂] and [I] at equilibrium at 600 K; K_c = 2.94 × 10⁻¹⁰
- b. Calculate [I₂] and [I] at equilibrium at 2000 K; K_c = 0.209