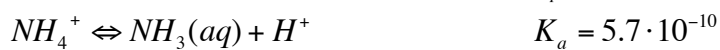
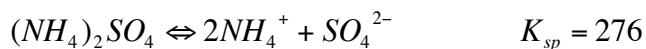


CHEM 201 Self Quiz – 3 (Equilibrium calculations)

1. Write a charge balance for a solution containing H^+ , OH^- , Ca^{2+} , HCO_3^- , CO_3^{2-} , $Ca(HCO_3)^+$, $Ca(OH)^+$, K^+ , ClO_4^- .
2. Considering the equilibria below, derive an equation relating $[M^{2+}]$, K_1 and K_2 when 0.10 mol of MX_2 is dissolved in 1 L of water.



3. When ammonium sulfate dissolves, both the anion and cation have acid-base reactions:



- a. write a charge balance for this system
- b. write a mass balance for this system
- c. find the concentration of the $NH_3(aq)$ if the pH is 9.25