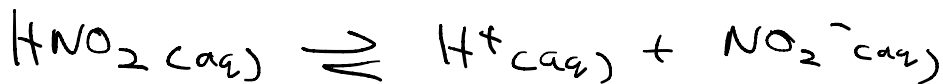


Review

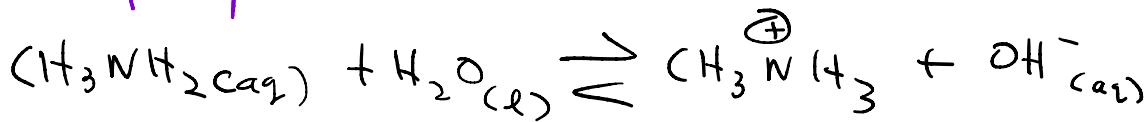
1) pH of a sol'n of a weak acid



The pH of a sol'n of an acid is due to the dissociation of that acid,

Need: the K_a/pK_a of the acid

2) pH/pOH of a sol'n of a weak base



ammonia NH_3 ammonium NH_4^+

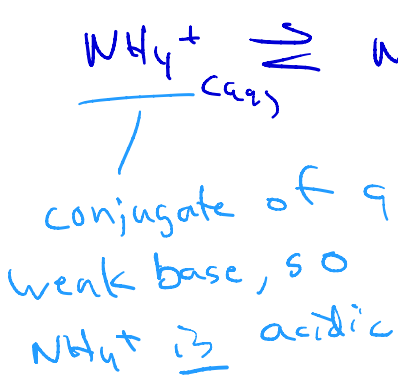
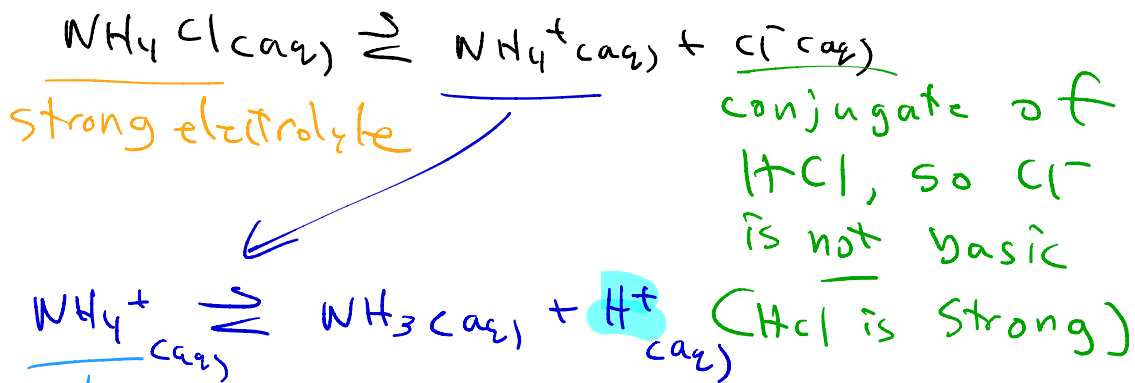
The pH/pOH of a solution of a base is due to *1) the reaction of the base with water (BL base) or 2) the dissociation of the base in water

Need: the K_b/pK_b of the base

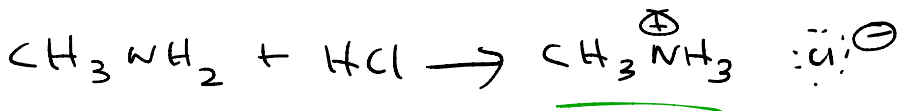
$[\text{OH}^-]$ is in the ICE problem, not $[\text{H}^+]$

3) pH of a solution of a conjugate of a weak base

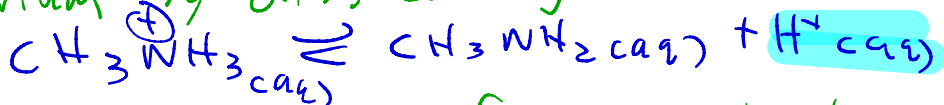
— Dissolve NH_4Cl in water



— Neutralize CH_3NH_2 with HCl



Since this product is the conjugate of a weak base, if it is forced to form by neutralization, it will then establish equilibrium by dissociating

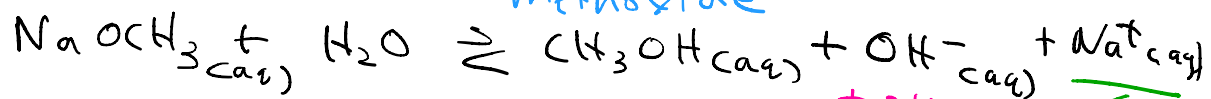


Need, conjugate K_a/pK_a from base K_b/pK_b

4) pH of a sol'n of the conjugate of a weak acid ^{L3}

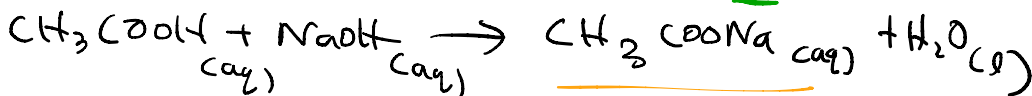
- Dissolve NaOCH_3 in water

methoxide

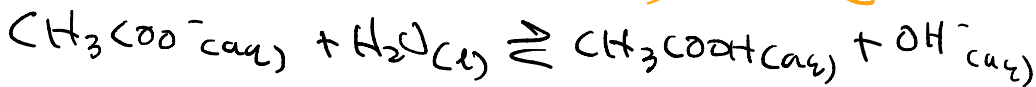


OH^-
Sodium is not
acidic -
(spectator)

- Fully neutralize CH_3COOH



conjugate of a weak
acid \rightarrow base



Need: Conjugate K_b/pK_b from acid K_a/pK_a
 $[\text{OH}^-]$ is in the ICE problem, not $[\text{H}^+]$

Strong acids - HNO_3 , H_2SO_4 , HCl , HBr , HI
 HClO_4

weak acids - HF , CH_3COOH (carboxylic acids)
 HNO_2 , H_2SO_3 , H_3PO_4