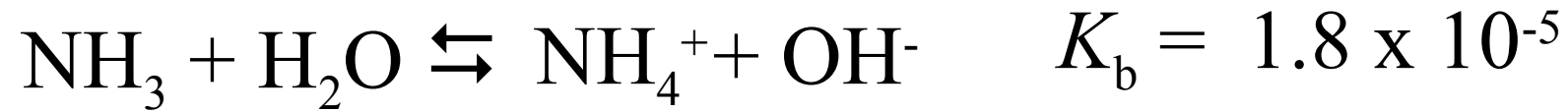


pH calculations

weak bases incomplete dissociation

What is the $[\text{OH}^-]$ of a **0.15 M** solution of NH_3



$$K_b = \frac{[\text{NH}_4^+][\text{OH}^-]}{[\text{NH}_3]} = \frac{x^2}{0.15 - x} = 1.8 \times 10^{-5}$$

$$x = 1.64 \times 10^{-3} = [\text{OH}^-] \quad \text{pOH} = 2.79 \quad \text{pH} = 11.21$$

	$[\text{NH}_3]$ (M)	$[\text{NH}_4^+]$ (M)	$[\text{OH}^-]$ (M)	
Initial	0.15	0.00	0.00	1.64×10^{-3}
Change	-x	+x	+x	$\frac{1.64 \times 10^{-3}}{0.15}$
Equil.	$0.15 - x$	x	x	1.1 %