

Unit 3 and 4 review... K_{sp} , K_a , K_b

- 1) Does a precipitate form when 0.050 L of 0.50 M $\text{Ca}(\text{NO}_3)_2$ is mixed with 0.100 L of 0.12 M NaF?
 K_{sp} of CaF_2 is 3.2×10^{-11}

- 2) Use the Boric acid and its conjugate base to prove that $K_a \times K_b = K_w$.

Boric Acid $K_a = 7.3 \times 10^{-10}$

$$\text{pH} + \text{pOH} = 14$$

$$K_a \cdot K_b = K_w$$

$$7.3 \times 10^{-10} \times K_b = 1.00 \times 10^{-14}$$

$$-\log K_a + -\log K_b = -\log 14$$

$$K_b = 0.000013699$$

$$\log 9.136 + 4.86 = 13.996$$