

$$NH_3 \quad K_b = 1,8 \cdot 10^{-5}$$

500mL of 0,2M  $NH_3$

500mL of 0,2M  $NH_4^+Cl^-$  soln



$$K_A = \frac{K_w}{K_b} = 5,55 \cdot 10^{-10}$$

$$pOH = 14 - pH = 14 + \log K_A - \log \left( \frac{0,2}{0,2} \right)$$

$$pOH = 14 - 9,25 = 4,75$$

$$pH = 9,25$$

6

500mL  
0,2M  
0,1mol

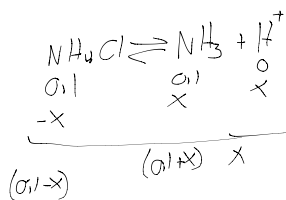
$NH_3$  mol  $K_b = 1,8 \cdot 10^{-5}$

500mL  
0,2M  
0,1mol  $NH_4Cl$

$$K_A = \frac{K_w}{K_b} = 5,55 \cdot 10^{-10}$$

$$K_A = 5,55 \cdot 10^{-10} = \frac{x(x+0,1)}{(0,1-x)} = \frac{x^2 + 0,1x}{0,1} = \frac{x^2}{0,1}$$

\* treat  $0,1-x$  as  $0,1$



$$\sqrt{0,1 \cdot 5,55 \cdot 10^{-10}} = 7,42 \cdot 10^{-6}$$

$$-\log(7,42 \cdot 10^{-6}) = pH = \underline{\underline{5,13}}$$