

# Titration Curves

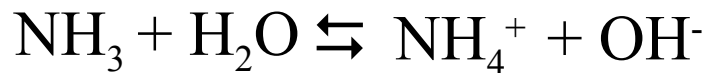
Weak Base + Strong Acid

0.1 M  $\text{NH}_3$                       0.1 M HCl

25.0 mL                              10.0 mL

$2.5 \times 10^{-3} \text{ mol}$                       -       $1.0 \times 10^{-3} \text{ mol}$                       =  $1.5 \times 10^{-3} \text{ mol}$

$V = 25 + 10 \text{ mL}$



$$x = 2.67 \times 10^{-5} \quad \text{pOH} = 4.57$$

$$\text{pH} = 9.43$$

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

$[\text{NH}_3]$	$[\text{NH}_4^+]$	$[\text{OH}^-]$
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0.043	0.029	0.0
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$0.043 - x$	$0.029 + x$	$x$
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$$1.8 \times 10^{-5} = \frac{[x][0.029 + x]}{[0.043 - x]}$$

