

## pH of weak bases

1.	Balanced equation.	Answers:	1. $[\text{OH}^-] = 0.00758 \text{ mol/L}$	$pH = 11.880$
2.	ICE table		2. $[\text{OH}^-] = 2.64 \times 10^{-6} \text{ mol/L}$	$pH = 8.422$
3.	$K_b$ expression		3. $[\text{OH}^-] = 6.34 \times 10^{-3} \text{ mol/L}$	$pH = 11.802$
4.	Check $\frac{[\text{weak base}]}{K_b}$		4. $[\text{OH}^-] = 0.0573 \text{ mol/L}$	$pH = 12.758$
5.	Substitute and solve			

Calculate the  $[\text{OH}^-]$  and the pH of a:

1. 0.0100 mol/L  $\text{Na}_3\text{PO}_{4(\text{aq})}$  solution. ( $K_b = 0.0238$  for  $\text{PO}_4^{3-}$ )

2. 0.500 mol/L  $\text{NaNO}_{2(\text{aq})}$  solution. ( $K_b = 1.39 \times 10^{-11}$  for  $\text{NO}_2^-$ )

3. 2.50 mol/L  $\text{NaCN}_{(\text{aq})}$  solution. ( $K_b = 1.61 \times 10^{-5}$  for  $\text{CN}^-$ )

4. 0.100 mol/L  $\text{K}_2\text{S}_{(\text{aq})}$  solution. ( $K_b = 0.0769$  for  $\text{S}^{2-}$ )