WS 6 - Strengths of Bases

1. Calculate the pH and pOH for each of the following:
   a) 1.00 mol/L NaOH(aq)

   b) 1.00 mol/L Ca(OH)$_2$(aq)

   c) 0.650 mol/L Al(OH)$_3$(aq)

   d) A solution made by dissolving 5.82 g of barium hydroxide in 2.00 L of water.

2. Calculate the K$_b$ for each of the following bases at 25°C:
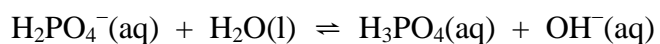   a) NO$_2^-$(aq)

   b) F$^-$(aq)

   c) HSO$_3^-$(aq)

   d) HCO$_3^-$(aq)

   e) OOCCOO^{2-}(aq)

3. Calculate the pH of a 13.5 mol/L solution of H$_2$PO$_4^-$(aq) using the following reaction:

   H$_2$PO$_4^-$(aq) + H$_2$O(l) $\rightleftharpoons$ H$_3$PO$_4$(aq) + OH$^-$(aq)

Strengths of Acids and Bases – pH Calculations

Calculate the pH for each of the following solutions. Show all work.

1. 0.32 mol/L $Mg(OH)_2(aq)$

2. 6.00 mol/L $NH_3(aq)$

3. 2.0×10^{-4} mol/L $KHSO_4(aq)$ **red with both litmus

4. 3.0 mol/L $H_2S(aq)$

5. 0.750 mol/L $KF(aq)$

6. 0.0505 mol/L $HI(aq)$

7. 16 mol/L $CH_3COOH(aq)$

8. 2.00 mol/L $NaCN(aq)$