

Tips & Trick

Remember: That For Strong Acid $K_{a1} \gg K_{a2}$
So it is always 100% diss of first H⁺

Remember these formulas like this for salt hydrolysis

$$S.A + W.B \Rightarrow \left[pH = 7 - \frac{1}{2} pK_b - \frac{\log c}{2} \right]$$

It is S. Acid so $[pH < 7] \Rightarrow$ we '-' sign in all terms
& here the Basic mol. is weaker so we use
us $[pK_b]$ as Base Hydrolysis is slow.

Similarly for $W.A + S.B$ $pH > 7$

$$\left[pH = 7 + \frac{1}{2} pK_a + \frac{\log c}{2} \right]$$

here Acid part hydrolysis. as it is weaker
So we use $[pK_a]$.

for $S.A + S.B \Rightarrow$ It's 7 we all know.

for $(W.A + W.B)$ it will be ~~diff~~ ^{diff} of pK_a & pK_b
added to 7. It depends on pK_a & pK_b

for solⁿ to be Acidic / Basic

$$\left[pH = 7 + \frac{1}{2} (pK_a - pK_b) \right]$$

Always Remember $\left[K_h = \frac{K_w}{K_a} \right]$ & H is subs. for
 α in salt hydrolysis & rest procedure
is same.

Remember $1 - \alpha \approx 1$ only if $(\alpha < 6.4 \times 10^{-4})$ i.e. (0.1)

$$\left[pH + p\alpha = pK_a \right]$$