Redissolving of metal hydroxides

1 What is redissolve?

- precipitate dissolve when excess reactant is used ∴ further reactions

	All 升 level Al^{3+} Zn^{2+} Pb^{2+} + $NaOH_{(aq)}$ / $KOH_{(aq)}$	升级 Zn^{2+} Cu^{2+} + $NH_{3(aq)}$ ($NH_3 \rightleftharpoons NH_4^+ + OH^-$) → ① Add drop by drop until in excess
limited	$Al^{3+} + 3OH^- \rightarrow Al(OH)_3$ $Zn^{2+} + 2OH^- \rightarrow Zn(OH)_2$ $Pb^{2+} + 2OH^- \rightarrow Pb(OH)_2$ } ② forms white ppt	$Zn^{2+} + 2OH^- \rightarrow Zn(OH)_2$ } ② forms white ppt $Cu^{2+} + 2OH^- \rightarrow Cu(OH)_2$ } ③ forms blue ppt
excess	$Al(OH)_3 + OH^- \rightarrow Al(OH)_4^-$ $Zn(OH)_2 + 2OH^- \rightarrow Zn(OH)_4^{2-}$ $Pb(OH)_2 + 2OH^- \rightarrow Pb(OH)_4^{2-}$ } ③ then dissolve again	$Zn(OH)_2 + 4NH_3 \rightarrow Zn(NH_3)_4^{2+} + 2OH^-$ $Cu(OH)_2 + 4NH_3 \rightarrow Cu(NH_3)_4^{2+} + 2OH^-$ } ③ then dissolve again ↳ ④ gives deep blue soln

2 Distinguishing tests

- 大部分问题也不会用到 redissolve 的方法
  - > eg. $Zn(NO_3)_2$, $Pb(NO_3)_2$
    - → Add $HCl_{(aq)}$, $Pb^{2+} + 2Cl^- \rightarrow PbCl_2$

- 用 redissolve 的例题
  - > eg. $Zn(OH)_2$, $Al(OH)_3$
    - → Add both solids into $NH_{3(aq)}$ respectively.
    - → $Al(OH)_3$ does not dissolve, $Zn(OH)_2$ dissolves.
    - → $Zn(OH)_2 + 4NH_3 \rightarrow Zn(NH_3)_4^{2+} + 2OH^-$