Sparingly soluble ionic solids exam tips

#### • This is Level 3 Chemistry, write ionic FORMULAE correctly!

• Write the charges on ions in ionic equations - the correct CHARGES would be good!

• Set out your calculations logically in a STEP-BY-STEP sequence

• Don't take SHORT CUTS in the mathematical processes when calculating Ks

• Link a rise in pH to increasing concentrations of hydroxide ions, OH-• Ammonia and amines are weak bases, so only partially react with water to produce OH– ions.

• Link a lower pH to increasing concentration of hydronium ions, H3O+

• NH4 + is a weak acid, so only partially reacts with water to produce H3O+
• Be able to fully discuss the relationship between pH and solubility of a basic salt

Also…”don’t be daft”

#### If asked to write an equilibrium equation, be sure to write the equilibrium arrow ⇌

#### Write ALL relevant equilibrium equations

Don't write solids or water in the Ks expression

If asked for the “solubility” of a solid, the question is asking for the concentration in mol L-1

#### What if the concentrations of ions in solution aren’t provided to you in the question but the mass/moles/volume are… be sensible, use your head and these equations to work out the concentration, then proceed as normal.

|  |  |
| --- | --- |
| https://scilearn.sydney.edu.au/fychemistry/iChem/images/triangle%20relationship%20c,n,v.png | https://scilearn.sydney.edu.au/fychemistry/iChem/images/triangle%20relationship%20n,m,M.png |

#### You do remember your complex ions from Level 2 – don’t you?

|  |  |  |
| --- | --- | --- |
| [Pb(OH)4]2- | [Ag(NH3)2]+ | [FeSCN]2+ |
| [Zn(OH)4]2- | [Zn(NH3)4]2+ |  |
| [Al(OH)4]- | [Cu(NH3)4]2+ |  |

Know how to use your CALCULATOR to calculate both square and cubed root correctly

Don't skip steps in calculations, WHY? you are more likely to make an error

We've said it before and will say it again, do not SKIP STEPS in your calculating!

Be sure to read the whole question, there are always clues provided

UNITS must be written

Aiming for an Excellence grade? then write your answers to THREE significant figures

<https://www.chemical-minds.com>