**Chemistry 3.6 AS 91392** Demonstrate understanding of equilibrium principles in aqueous systems



Writing Excellence answers to **Common Ion Effect** questions

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| **Common Ion Effect QUESTION** | |
| **Question:**  Show, by calculation, that a precipitate of lead(II) hydroxide, Pb(OH)2, will form when 25.0 mL of a sodium hydroxide solution, NaOH, at pH 12.6 is added to 25.0 mL of a 0.00421 mol L–1 lead(II) nitrate, Pb(NO3)2, solution.  *K*s(Pb(OH)2) = 8.00 × 10–17 at 25°C | |
| **ANSWER** | |
| **1.** write the equation for the dissociation of salt |  |
| **2.** Write the solubility product expression, *Q,*  for the salt (Ks) |  |
| **3.** calculate the solubility, s for the first ion after dilution  [Pb2+] = c x v  total v  *3sgf and units* |  |
| **4.** calculate the concentration of [OH-] from pH  [OH-] = 10 -(14-pH)    *3sgf and units* |  |
| **5**. calculate the solubility, s for the second ion after dilution  [OH-] = c x v  total v  *3sgf and units* |  |
| **6.** Calculate Q from expression  Q = [ion1] x [ion2]2  *3sgf (has no units)* |  |
| **7.** compare Q and Ks and state whether a precipitate will form or not |  |

NOTE: The white column is how your answer would appear on your test paper so make sure you **write out complete sentences**. The grey area is just to help you structure your answer and would not appear in the question.