Writing Excellence answers to Solubility of sparingly soluble salts questions

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Cold Mity of spanningly soluble salts QUESTIONQuestion: Silver carbonate, Ag_2CO_3 , is a sparingly soluble salt. $K_s(Ag_2CO_3) = 8.10 \times 10^{-12}$ at 25°C $M(Ag_2CO_3) = 276$ g mol ⁻¹ (a) Write the solubility product expression, K_s , for silver carbonate (Ag_2CO_3).(b) Calculate the mass of Ag_2CO_3 that will dissolve in 50 mL of water to make a saturated solution at 25°C.	
	ANSWER
1. write the equation for the dissociation of salt	$Ag_2CO_{3(s)} \rightleftharpoons 2Ag^+_{(aq)} + CO_3^{2-}_{(aq)}$
2. Write the solubility product expression, <i>K</i> _s , for the salt	$K_{\rm s} = [{\rm Ag}^+]^2 [{\rm CO}_3^{2-}]$
3. calculate the solubility, s 2:1 salt Let s = solubility $K_s = 4s^3$ 3sgf and units	$K_s = 4s^3$ $s = \sqrt[3]{K_s/4}$ $s = 1.27 \times 10^{-4} \text{ mol } L^{-1}$
4. calculate number of moles $n = c \times v$	$n = c \times v$ $n = 1.27 \times 10^{-4} \text{ mol } L^{-1} \times 0.0500L$ $n = 6.33 \times 10^{-6} \text{ mol}$
3sgfand units	
5. calculate mass of salt $m = n \times M$	$m = n \times M$ $m = 6.33 \times 10^{-6} \text{ mol x } 276 \text{ g mol}^{-1}$ $m = 1.75 \times 10^{-3} \text{ g}$
3sgJand Units	

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.