CHM 152 Solubility Equilibria Problems

I. Write salt dissolution reaction (solid salt on left but no water!; ions on right of eq arrow)
II. Write K_{sp} expression (don't include solid salt!)
III. Set up ICE. x = molar solubility of the salt (Use MM to convert to gram solubility)

1) If a saturated solution prepared by dissolving CaF_2 in water has $[Ca^{2+}] = 3.3\times10^{-4}$ M, what is the value of K_{sp}?

2) K_{sp} for $Al(OH)_3$ is 1.9×10^{-33}. Calculate the molar solubility.

3) The solubility of $Ca(OH)_2$ is found to be 0.233 g/L. Calculate $K_{sp.}$

4) a) Calculate the molar solubility of SrF_2 in pure water. $K_{sp} = 4.3\times10^{-9}$

b) Calculate the molar solubility of SrF_2 in 0.010 M NaF.

5) Will a precipitate form when 0.150 L of 0.10 M lead (II) nitrate and 0.100 L of 0.20 M sodium chloride are mixed? For $PbCl_2$, $K_{sp} = 1.2\times10^{-5}$