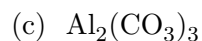
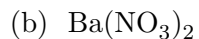


Name: \_\_\_\_\_

Date: \_\_\_\_\_

[6 pt] 1. Write the  $K_{sp}$  equilibrium equation for the dissolution of the following compounds in water:



[6 pt] 2. A saturated solution of  $\text{Ca}_3(\text{PO}_4)_2$  has  $[\text{Ca}^{+2}] = [\text{PO}_4^{-3}] = 2.9 \times 10^{-7}\text{M}$ .

(a) What is the value of  $K_{sp}$ ? 2(a) \_\_\_\_\_

(b) What is the  $[\text{Ca}^{+2}]$  in a saturated solution of  $\text{Ca}_3(\text{PO}_4)_2$  that has  $[\text{PO}_4^{-3}] = 0.010\text{ M}$ ? 2(b) \_\_\_\_\_

(c) What is the  $[\text{PO}_4^{-3}]$  in a saturated solution of  $\text{Ca}_3(\text{PO}_4)_2$  that has  $[\text{Ca}^{+2}] = 0.010\text{ M}$ ? 2(c) \_\_\_\_\_

CHE 112 - Homework - Ch 15a

- [6 pt] 3. Calculate the solubility of  $\text{MgF}_2$  ( $K_{sp} = 7.4 \times 10^{-11}$  in water at  $25^\circ\text{C}$  in units of:
- (a) Molar Solubility (mol/L): 3(a) \_\_\_\_\_
- (b) grams per Liter: 3(b) \_\_\_\_\_
- [4 pt] 4. Will a precipitate of  $\text{PbCl}_2$  ( $K_{sp} = 1.2 \times 10^{-5}$ ) form if the concentration of  $\text{Pb}_2^+$  4. \_\_\_\_\_ ions is  $6.0 \times 10^{-2}$  mols and  $\text{Cl}^- = 8.0 \times 10^{-2}$  mols? Explain.
- [4 pt] 5. Will a precipitate of  $\text{PbCl}_2$  form on mixing equal volumes of 0.010 M  $\text{Pb}(\text{NO}_3)_2$  and 5. \_\_\_\_\_ 0.010 M HCl? Explain.
- [4 pt] 6. For the solution made in the previous problem, what is the minimum concentration 6. \_\_\_\_\_ of  $[\text{Cl}^-]$  required to begin precipitation from a  $5.0 \times 10^{-3}$  M solution of  $\text{Pb}(\text{NO}_3)_2$ . Explain.