

Name:

Date:

Period:

Seat #:

Show all work for each question, box your final answer

#1: Calculate the pH of a saturated solution of AgOH, $K_{sp} = 2.0 \times 10^{-8}$ [10.15]

#2: Calculate the pH of a saturated solution of Cu(OH)₂, $K_{sp} = 1.6 \times 10^{-19}$ [7.835]

#3: Calculate the pH of a saturated solution of Mg(OH)₂, $K_{sp} = 5.61 \times 10^{-12}$ [10.350]

#4: Calculate the pH of a saturated solution of Ba(OH)₂, $K_{sp} = 5.0 \times 10^{-3}$. [13.33]

The following three examples are all of the form X(OH)₂. These are the ones most commonly asked on tests and in worksheets.
Calculate the pH of a saturated solution of:

#5: Ca(OH)₂, $K_{sp} = 7.9 \times 10^{-6}$ (pH = 12.10)

#6: Mn(OH)₂, $K_{sp} = 4.6 \times 10^{-14}$

#7: $\text{Ni}(\text{OH})_2$, $K_{\text{sp}} = 2.8 \times 10^{-16}$

#8: A saturated solution of $\text{Mg}(\text{OH})_2$ is prepared. The pH of the solution is 10.17. What is the K_{sp} for this compound?
[$K_{\text{sp}} = 1.62 \times 10^{-12}$]

#9: What is the minimum pH at which $\text{Cr}(\text{OH})_3$ will precipitate? K_{sp} of $\text{Cr}(\text{OH})_3$ is 6.70×10^{-31} [6.576]

#10: What is the minimum pH at which $\text{Cr}(\text{OH})_3$ will precipitate if the solution has $[\text{Cr}^{3+}] = 0.0670 \text{ M}$?
 K_{sp} of $\text{Cr}(\text{OH})_3$ is 6.70×10^{-31} [4.333]

#11: At what pH will $\text{Al}(\text{OH})_3(\text{s})$ begin to precipitate from 0.10 M AlCl_3 ? The K_{sp} of $\text{Al}(\text{OH})_3$ is 1.90×10^{-33} [3.426]