

Name: _____

Period: _____

Seat#: _____

Directions: Show all work. Box your final answer. *NOTE* The ones in the form of X(OH)₂ seem to be the most common on the AP test. You need to be able to solve for a variety of types to be safe, but the X(OH)₂ seems to come up in a lot of years.

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

5) Calculate the pH of a saturated solution of Ca(OH)₂, $K_{sp} = 7.9 \times 10^{-6}$ 12.4

6) Calculate the pH of a saturated solution of Mn(OH)₂, $K_{sp} = 4.6 \times 10^{-14}$ 9.65

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Acid Base – K_{sp} and Solubility

7) Calculate the pH of a saturated solution of Ni(OH)₂, K_{sp} = 2.8 x 10⁻¹⁶ 8.92

8) A saturated solution of Mg(OH)₂ is prepared. The pH of the solution is 10.17. What is the K_{sp} for this compound? K_{sp} = 1.62 x 10⁻¹²

9) What is the minimum pH at which Cr(OH)₃ will precipitate? K_{sp} of Cr(OH)₃ is 6.70 x 10⁻³¹ 6.576

10) What is the minimum pH at which Cr(OH)₃ will precipitate if the solution has [Cr³⁺] = 0.0670 M?
K_{sp} of Cr(OH)₃ is 6.70 x 10⁻³¹ 4.333

11) At what pH will Al(OH)₃(s) begin to precipitate from 0.10 M AlCl₃? The K_{sp} of Al(OH)₃ is 1.90 x 10⁻³³ 3.426