Name: **Period:**   **Seat#:**

It is very common for students to solve for the wrong thing on Ksp questions. For the following question focus your attention on the actual question being asked!

1) True of False – the terms solubility, solubility-product constant (Ksp), and concentration of ions are the same thing. Explain.

2) What is the net ionic equation for the dissolution of silver sulfide in water?

3) What is the equilibrium expression (solubility product constant) for the rxn?

4) What are the units on the equilibrium expression?

5) If the Ksp is 8.00×10^{-18} what is the molar solubility? _1.26 x 10⁻⁶_

6) What are the units on the molar solubility?

7) What is the solubility of Ag_2S in g/L? _3.12 x 10⁻⁴_

8) What is the molarity of a saturated solution of Ag_2S?

9) What is the $[S^{2-}]$ in a 50mL sample of a saturated solution?

10) What is the $[Ag^+]$ in a 50mL sample of a saturated solution?

11) What is the $[S^{2-}]$ in a 100 mL sample of the saturated solution?

12) What is the $[Ag^+]$ in a 100 mL sample of the saturated solution?

13) How many grams of Ag_2S can be dissolved in 5 L? _1.56 x 10⁻³_

14) If $[Ag^+] = 3.5 \times 10^{-14}$ and $[S^{2-}] = 2.3 \times 10^{-12}$, what is the value of Q?	*2.82 x 10⁻³⁹*	**15)** Based on your answer to #14, will a precipitate form, yes or no? Why?
16) If $[Ag^+] = 1.75 \times 10^{-4}$ and $[S^{2-}] = 6.2 \times 10^{-9}$, what is the value of Q?	*1.90 x 10⁻¹⁶*	**17)** Based on your answer to #16, will a precipitate form, yes or no? Why?
18) If $[Ag^+] = 4.0 \times 10^{-3}$ and $[S^{2-}] = 5.0 \times 10^{-13}$, what is the value of Q?	*8.00 x 10⁻¹⁸*	**19)** Based on your answer to #18, will a precipitate form, yes or no? Why?

20) What is the minimum number of moles of Ag^+ needed to precipitate Ag_2S in a 50mL solution that is 0.002 M S^{2-} ? *3.16 x 10⁻⁹*

21) How many moles of Na_2S must be dissolved in 0.5 L of a saturated solution of Ag_2S to reduce the $[Ag^+]$ to 1.2×10^{-6} M? *2.78 x 10⁻⁶*

22) What is the molar solubility of Ag_2S when made in a 0.10 M solution of Na_2S instead of distilled water? *4.47 x 10⁻⁹*	**23)** What is the solubility in g/L of Ag_2S when made in a 0.10 M solution of Na_2S instead of distilled water? *1.11 x 10⁻⁶*

24) How many grams of Ag_2S can be dissolved in 5 L of the 0.10 M solution of Na_2S? *5.54 x 10⁻⁶*

25) How do your answers for #13 and #24 compare? Do they make sense when looking at your answers to #5, 7, 22 and 23? Explain.