40. Write the EQUILIBRIUM EQUATION for a saturated solution of the following salts AND the corresponding SOLUBILITY PRODUCT EXPRESSIONS.

(a) $BaSO_4(s)$

(b) $MgF_2(s)$

(c) $Ag_2S(s)$

(d) $Cu(lO_3)_2(s)$

41. Which of the following salts is the most soluble? Which is the least?
AgCl ; $K_{sp} = 1.8 \times 10^{-10}$
Aal ; $K_{sp} = 8.5 \times 10^{-17}$
AgBr; $K_{sp} = 5.4 \times 10^{-13}$

42. A solution in equilibrium with a precipitate of $FeCO_3$ contains 5×10^{-6} M Fe^{2+} and 6×10^{-6} M CO_3^{2-}. Calculate K_{sp} for $FeCO_3$.

43. What is the concentration of Zn^{2+} ions in a saturated solution made by shaking ZnS(s) with water?

44. How many grams of $PbSO_4(s)$ Will dissolve in 5.0 L of water?

47. Calculate the molar solubility of Ag_2CrO_4.

49. Calculate the solubility of $Fe(OH)_2$ in grams per litre.

50. A solution in equilibrium with a precipitate of Ag_2S contained 1.6×10^{-16} M S^{2-} and 2.6×10^{-17} M Ag^+. Calculate the solubility product of Ag_2S.

51. A small piece of the mineral smithsonite, $ZnCO_3$, with a mass of 0.000 14 g just barely dissolves in 100.0 mL of water. Calculate K_{sp} for $ZnCO_3$.

52. What is the concentration of OH^- in a saturated solution of $Zn(OH)_2$? $K_{sp} = 4.1 \times 10^{-17}$ for $Zn(OH)_2$.

55. The data below was obtained when a student combined various solutions of $Mn(NO_3)_2$ and KOH.

Trial	$[Mn^{2+}]$	$[OH^-]$
1	2.1×10^{-5}M	1.0×10^{-4}M
2	7.8×10^{-4}M	?

What is the value of the $[OH^-]$ in Trial 2?