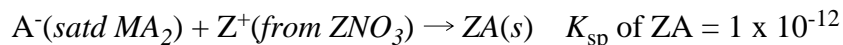


Solubility Product Problems

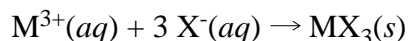
You should be able to do these problems without a calculator.

1. A 50.0 mL sample of a clear saturated solution of MA_2 ($K_{sp} = 4 \times 10^{-12}$) required 10.0 mL of a certain $ZNO_3(aq)$ for its titration.
What was the molarity of this $ZNO_3(aq)$ solution? (**$1 \times 10^{-3} M$**)



2. $M(OH)_2(s)$ is dissolved in water to produce a saturated solution. A 25.00 mL sample of the clear saturated solution required 10.00 mL of 0.1000 M HCl for its titration. What is the K_{sp} of $M(OH)_2$? (**3.2×10^{-5}**)

3. The K_{sp} of $MX_3(s)$ at 27°C is 1.0×10^{-12} and at 52°C it is 1×10^{-11} . What is ΔH° for the reaction below? (**-75 kJ/mol**)



4. The solubility product of $Ag_2CrO_4 = 1.0 \times 10^{-12}$.
(a) Can the solubility of silver chromate be lowered to 5.0×10^{-8} mol Ag_2CrO_4 /liter by using CrO_4^{2-} as the common ion? Explain by calculating the $[CrO_4^{2-}]$ that would be required. (**No**)
(b) Can the solubility of silver chromate be lowered to 5.0×10^{-8} mol Ag_2CrO_4 /liter by using Ag^+ as the common ion? Explain by calculating the $[Ag^+]$ that would be required. (**Yes**)