AP Chemistry − Hey, Howdy Hey! − 58

Name _____Per ___

1. (a) What is the aqueous equilibrium equation for $AgCl_{(s)}$ dissociation?

(b) What is the molar solubility of AgCl in water at $10 °C$ if 8.9×10^{-5} g of $AgCl_{(s)}$ will dissolve in 100. g of water at $10 °C$?

(c) What is the K_{sp} for $AgCl_{(s)}$ at $10 °C$?

2. (a) Write the complete balanced equation for the reaction of NaCl with $Pb(NO_3)_2$.

(b) If 80.0 mL of 0.0500 M $NaCl_{(aq)}$ is added to 70.0 mL of 0.0400 M $Pb(NO_3)_{2(aq)}$ will a precipitate form at $25 °C$? The K_{sp} of $PbCl_2$ is 1.6×10^{-5} at $25 °C$. Assume that the volumes are additive.

(c) Determine the equilibrium concentration of $Pb^{2+}_{(aq)}$ in 1.00 L of saturated $PbCl_2$ solution to which 0.330 mole of $NaCl_{(s)}$ has been added. Assume that no volume change occurs.

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3. (a) Write the complete balanced equation for the reaction of NaCl with $AgNO_3$.

(b) If 0.200 M $NaCl_{(aq)}$ is added to 0.140 M $AgNO_{3(aq)}$ at $25^{\circ C}$, what will be the concentration of the chloride ion when precipitation begins? The K_{sp} of AgCl is $1.8x10^{-10}$ at $25^{\circ C}$.

(c) If 0.200 M $NaCl_{(aq)}$ is added to 0.140 M $Pb(NO_3)_2$ at $25^{\circ C}$, what will be the concentration of the chloride ion when precipitation begins?

(d) If 0.200 M $NaCl_{(aq)}$ is added to a mixture of the 0.140 M $AgNO_{3(aq)}$ and 0.140 M $Pb(NO_3)_{2(aq)}$ at $25^{\circ C}$, what solid will precipitate first?

4. The reaction below is first order in C_2H_4O with a rate constant of 0.000205 s^{-1}.
$C_2H_4O_{(g)} \rightarrow CH_{4(g)} + CO_{(g)}$
An unknown mass of C_2H_4O, is allowed to react for 8400 s. During that time 6.57 g react. How many grams of the compound were in the original sample?