Precipitation Reactions (Ksp mini lab)

1. Knowing your ions, write the chemical formula for calcium hydroxide: _____

2. Write the equation for the solubility equilibrium of the slightly soluble base, calcium hydroxide. Include phases [(s), (l), etc.]

3. Write the K_{sp} expression for this reaction: K_{sp} =

4. *If* a saturated solution of calcium hydroxide had a molarity of 0.0125 M,
   $[Ca^{2+}]$ = $[OH^-]$ =

5. For solids with low solubility, a **saturated solution** is an **equilibrium** situation. Calculate the K_{sp} *if* the solubility of calcium hydroxide were 0.0125 M.

Mini-Lab Demo:

a. We measured _____ mL of saturated calcium hydroxide solution.

b. After adding indicator solution, _____ M HCl is added.

c. It took ____ drops of HCl to neutralize the sample of calcium hydroxide.

d. 1.0 mL is ____ drops of HCl. We used _____ mL of HCl in our titration.

e. Use the formula: $V_aM_a = V_bM_b$ to calculate the $[OH^-]$.

f. The $[Ca^{2+}]$ =

g. Calculate the K_{sp} of calcium hydroxide.

h. Use your Appendix to give the actual K_{sp} for calcium hydroxide: _____

Reactions:

"Limestone" is _____. It can be turned into "lime" and a common gas by heating in a kiln or furnace.
Predict the reaction if: "Solid limestone is strongly heated."

"Lime" is _____. When mixed with water, it turns into "limewater".
Predict the reaction if: "Solid lime is added to distilled water."

What gas is "limewater" used as a test for? _____
Predict the reaction if: "Carbon dioxide gas is bubbled through limewater."