

These tips and answers are provided to help you as you do the homework. In some cases, the final answer to a problem is provided to allow you to check your work, but we have not shown you how to get the answer. For these problems, do not simply copy the answer and hand it in; you will be expected to show work for all homework problems that you turn in. A detailed solution key will be also be made available.

- 1) Use the solubility rules chart that is included with the handout that was distributed! (And remember that all compounds that contain Na^+ , K^+ , NO_3^- , NH_4^+ or $\text{C}_2\text{H}_3\text{O}_2^-$ are water-soluble.)
- 2) a) Hint: HNO_3 is a strong acid.
 b) Hint: HNO_2 is a weak acid.
- 3) Be sure that you have the correct formula for sodium sulfate.
- 4) a) 0.2951 M.
 b) 231 mL of water.
 c) 4.3 g of sodium sulfate
- 5) a) 11.1 g of potassium phosphate
 b) 0.630 M K^+ (Can you figure out how much PO_4^{3-} it contains?)
 c) 0.210 M
- 6) and 7) Hints are provided with the problems. See the full solutions key for the answers.
- 8) Not all ions are covered on the solubility rule chart, but a little logic will give you the answer.
- 9) Hint: think about solubility rules here.
- 10) a) The precipitate is PbBr_2 .
 b) No hints for this part.
 c) 0.06553 M.
- 11) a) The solid is $\text{Pb}(\text{HCO}_3)_2$.
 b) The reaction is $\text{Pb}(\text{HCO}_3)_2(\text{s}) + 2 \text{H}^+(\text{aq}) \rightarrow \text{Pb}^{2+}(\text{aq}) + 2 \text{CO}_2(\text{g}) + 2 \text{H}_2\text{O}(\text{l})$
 c) 3.3 g.
- 12) You should end up with 0.013 M Mg^{2+} and 0.223 g $\text{Mg}(\text{OH})_2$. You also end up with two other aqueous substances, whose concentrations you need to figure out.
- 13) You should end up with 0.0866 M H^+ and 0.0827 M Zn^{2+} . You also end up with one other aqueous substance, whose concentration you need to figure out.
- 14) The molarity of the $\text{H}_2\text{C}_4\text{H}_4\text{O}_4$ solution is 0.1069 M. Hint: start by figuring out the concentration of the NaOH solution, using the first titration.