

Name: \_\_\_\_\_

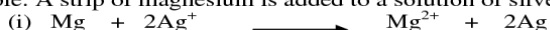
Period: \_\_\_\_\_

### AP Chemistry Chemical Equations Worksheet

**Directions:** Record the answer the following sets of AP equations below. Do your scratch work on your own paper.

For each of the following reactions, in part (i) write a BALANCED equation and in part (ii) answer the question about the reaction. In part (i), coefficients should be in terms of the lowest whole numbers. Assume that solutions are aqueous unless otherwise indicated. Represent substances in solutions as ions if the substances are extensively ionized. Omit formulas for any ions or molecules that are unchanged by the reaction.

Example: A strip of magnesium is added to a solution of silver nitrate.



(ii) Which substance is oxidized in the reaction?

Answer: Magnesium (Mg) metal

1. (i) Solutions of sodium iodide and lead nitrate are mixed. $\text{Pb}^{2+} + 2\text{I}^- \longrightarrow \text{PbI}_2$	(ii) What are the spectator ions in the reaction? $\text{Na}^+ \text{ and } \text{NO}_3^-$
2. (i) Hydrogen sulfide gas is added to a solution of cadmium nitrate. $\text{H}_2\text{S} + \text{Cd}^{2+} \longrightarrow \text{CdS} + 2\text{H}^+$	(ii) Is the resulting solution acidic, basic or neutral? $\text{Acidic}$
3. (i) Dilute hydrochloric acid is added to a solution of potassium carbonate. $2\text{H}^+ + \text{CO}_3^{2-} \longrightarrow \text{CO}_2 + \text{H}_2\text{O}$	(ii) Would the gas produced in the reaction support combustion? $\text{No}$
4. (i) Dilute sulfuric acid is added to solid calcium fluoride. $\text{CaF}_2 + 2\text{H}^+ \longrightarrow \text{Ca}^{2+} + 2\text{HF}$	(ii) Is the acid formed in the reaction strong or weak? $\text{Weak}$
5. (i) A solution of copper(II) chloride is added to a solution of sodium sulfide. $\text{Cu}^{2+} + \text{S}^{2-} \longrightarrow \text{CuS}$	(ii) What is the precipitate formed in the reaction? $\text{CuS}$
6. (i) A solution of potassium phosphate is mixed with a solution of calcium acetate. $3\text{Ca}^{2+} + 2\text{PO}_4^{3-} \longrightarrow \text{Ca}_3(\text{PO}_4)_2$	(ii) What are the spectator ions in the reaction? $\text{K}^+ \text{ and } \text{C}_2\text{H}_3\text{O}_2^-$
7. (i) Hydrogen sulfide gas is bubbled through a solution of lead(II) nitrate. $\text{H}_2\text{S} + \text{Pb}^{2+} \longrightarrow \text{PbS} + 2\text{H}^+$	(ii) Is the acid formed in the reaction strong or weak? $\text{Strong}$