

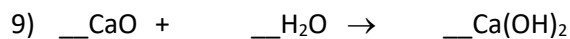
**Honors Chemistry: Chemical Reactions Podcasts 1-3 Problem Set- Writing Chemical Reactions**

Write each of the following equations using chemical symbols and all other appropriate symbols. Remember to put states of matter in parentheses and subscripted.

1. Iron is heated in the presence of solid sulfur to form solid iron(III) sulfide.
2. Gaseous methane  $\text{CH}_4$  is reacted with oxygen gas to form carbon dioxide gas and water vapor.
3. Aqueous copper(II) chloride is added to aqueous lead(II) nitrate to form solid lead(II) chloride and aqueous copper(II) nitrate.
4. Chlorine gas is bubbled into aqueous sodium bromide to form aqueous sodium chloride and liquid bromine.
5. Solid silver is added to aqueous gold(III) chloride to form solid gold and a silver chloride precipitate.
6. Gaseous ammonia ( $\text{NH}_3$ ) is bubbled into water to form aqueous ammonium hydroxide.

**Balancing Chemical Equations** (Balance the following equations)

- 1)  $\text{HgO} \rightarrow \text{Hg} + \text{O}_2$
- 2)  $\text{HCl} + \text{Mg} \rightarrow \text{H}_2 + \text{MgCl}_2$
- 3)  $\text{CH}_4 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- 4)  $\text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- 5)  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$



10) Hydrogen gas reacts with liquid iodine to produce hydroiodic acid.

11) Sulfur reacts with oxygen to produce sulfur dioxide.

12) Calcium acetate reacts with sodium carbonate to produce calcium carbonate and sodium acetate.

13) Iron combines with oxygen and water to form iron(III) hydroxide.

14) Sulfur trioxide is bubbled through water to produce sulfuric acid.

15) Copper-bottomed cooking pans turn black because copper combines with oxygen to form copper(II) oxide.

16) Magnesium hydroxide neutralizes stomach acid,  $\text{HCl}_{(\text{aq})}$ , to produce magnesium chloride and water.

### Podcast Chemical Reactions 3:

Now go back through the above equations and reactions and write down the *specific type* of each reaction. You learned this in Chemical Reactions Podcast 3.