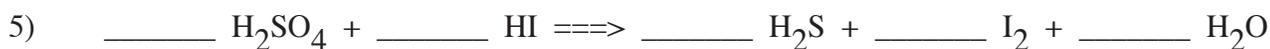
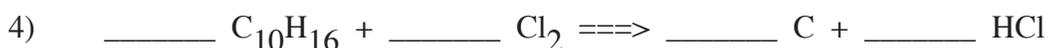
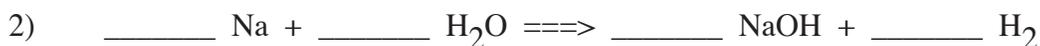
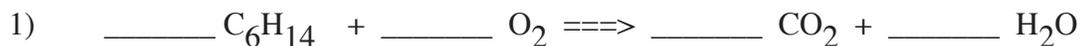


## Vasquez High School -- Chemistry -- Quest #5 -- Chapter 7 -- 65 points

In all that you do here, make your work as neatly as possible. If I cannot read it, you don't get credit. Make it worthy of a solid chemistry student. Show ALL your work. Giving only the answer may not get you full credit, but partial credit is given for partial achievement. **PENCIL ONLY.**

Balance the following chemical equations - do not leave any blanks. Five points each.



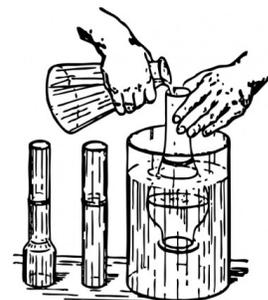
Translate each of the following into a proper chemical equation and balance them. Five points each.

6) Antimony is burned in oxygen gas to form tetrantimony hexoxide.

7) Chromium reacts with water vapor at great heat to produce chromium (III) oxide and hydrogen gas.

8) Tin (II) nitrate is decomposed into tin (II) oxide plus nitrogen dioxide plus oxygen gas.

9) Potassium peroxide plus water yields potassium hydroxide and oxygen gas.



10) Gallium iodide and chlorine gas combine to form gallium chloride and iodine vapor.

Short answer - fill-in section. Three points each.

- 11) The substances on the left-hand side of a chemical equation are called \_\_\_\_\_ and the substances on the right are called the \_\_\_\_\_,
- 12) In any typical combustion reaction, we produce \_\_\_\_\_ and \_\_\_\_\_.
- 13) When balancing a chemical reaction, we are never allowed to change the \_\_\_\_\_ but must always change only the \_\_\_\_\_.
- 14) The proper title for the idea that states that what you start with is what you end up with is the \_\_\_\_\_.
- 15) Three evidences for a chemical reaction are: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

EXTRA CREDIT: You have to give a precise and complete solution for the five points - no partial given on this one...don't even try to bargain for them...here goes...

A very rich man has three sons. He wishes to leave his fortune to the wisest of the three sons and devises a test to see who that might be. He tells the three sons, "My sons, I am going to blindfold all three of you. Then I am going to place a white hat or a black hat upon your head. Then I am going to remove your blindfolds. If you see at least one black hat, raise your hand. The first son to figure out what color hat he is wearing (without looking at his own) and WHY gets my fortune. Okay?"

So the father does as he says. When the sons remove their hats, all three raise their hands. About a minute later, one of the sons says, "Father, I know what color my hat is."

What was the color of his hat AND how did he know for sure?

