Part 1: Check the number of atoms of each element on each side and determine whether the equation is balanced (Y) or not (N):

1. H2 + Cl2 🡪 2HCl \_\_\_
2. H2 + O2 🡪 2H2O \_\_\_
3. 3F2 + N2 🡪 2NF3 \_\_\_
4. 2KClO3 🡪 2K + Cl2 + 3O2 \_\_\_
5. 3Na + 3H2O 🡪 3NaOH + H2 \_\_\_
6. 3K2CO3 + 2Al(OH)3 🡪 6KOH + Al2(CO3)3 \_\_\_

Part 2: Balance the equation by writing in the coefficients (lowest whole numbers).

1. \_\_\_Li + \_\_\_ O2 🡪 \_\_\_ Li2O
2. \_\_\_ N2 + \_\_\_ O2 🡪 \_\_\_ N2O
3. \_\_\_ N2 + \_\_\_ H2 🡪 \_\_\_ NH3
4. \_\_\_KBr 🡪 \_\_\_ K + \_\_\_ Br2
5. \_\_\_ Al2O3 🡪 \_\_\_ Al + \_\_\_ O2
6. \_\_\_FeBr3 + \_\_\_ F2 🡪 \_\_\_FeF3 + \_\_\_Br2
7. \_\_\_NH3 + \_\_\_ O2 🡪 \_\_\_ NO + \_\_\_H2O
8. \_\_\_ Sn3(BO3)4 🡪 \_\_\_ Sn + \_\_\_ B + \_\_\_ O2
9. \_\_\_H3PO4 + \_\_\_ Ca(OH)2 🡪 \_\_\_ Ca3(PO4)2 + \_\_\_ H2O
10. \_\_\_ C5H12O + \_\_\_ O2 🡪 \_\_\_ CO2 + \_\_\_ H2O
11. \_\_\_ Al2O3 + \_\_\_ C + \_\_\_ Cl2 🡪 \_\_\_ AlCl3 + \_\_\_ CO
12. \_\_\_ SiF4 + \_\_\_ H2O 🡪 \_\_\_ H4SiO4 + \_\_\_ H2SiF6
13. \_\_\_ HNO3 + \_\_\_ P4O10 🡪 \_\_\_ N2O5 + \_\_\_ H3PO4
14. \_\_\_ H3PO4 🡪\_\_\_ P4O10 + \_\_\_ H2O
15. \_\_\_ AuCO3 + \_\_\_ Mn(ClO4)5 🡪 \_\_\_ Au(ClO4)2 + \_\_\_ Mn2(CO3)5

Part 3: Answer the following question. SHOW WORK on calculations to receive credit.

1. Label the reactants, products, and the part of the equation that represents yield for this reaction:

BaO + 2 HCl 🡪 BaCl2 + H2O

1. Why do equations need to be balance?
2. Explain how this equation is violating the Law of Conservation of Mass: K +S 🡪 K2S.
3. A student performed the following reaction: MgCl2 🡪 Mg + Cl2

If the student collected 49g Mg and 142 g of Cl2, how many grams of MgCl2 did the student start with?

1. A student performed the following reaction: 3 H2SO4 + 2 Fe(OH)3 🡪 Fe2(SO4)3 + 6 H2O

147 g 160 g 200 g

 How many grams of water would be produced?

1. A student performed the following reaction: Mg + 2 AgNO3 🡪 2 Ag + Mg(NO3)2

 849.4 g 539.4 g 370.8 g

How much Mg reacted?