Writing BCE and Stoichiometry Problems

Write the BCE with subscripts--then google to make sure--there is no point to doing the math until your BCEs are perfect.

1. Carbon monoxide burns in oxygen to produce carbon dioxide.

   How many moles of CO and O_2 are required to produce 10. moles of CO_2.

2. If 5.0 moles of water are synthesized, how many moles of hydrogen and oxygen are required?

3. How many moles of tin are produced by reacting tin (IV) oxide with carbon? Carbon dioxide is also produced.

4. How many moles of hydrogen are needed to completely react with 3.0 moles of nitrogen to produce ammonia?

5. How many moles of oxygen are produced by the decomposition of 6.0 of potassium chlorate?

6. How many moles of hydrogen are produced by the single replacement reaction of 3.0 mol of zinc with an excess of hydrochloric acid?

7. How many moles of oxygen are required to completely react with 4.0 moles of propane, C_3H_8 or BBQ fuel?

8. How many moles of potassium nitrate are produced when 2.0 moles of potassium phosphate react with 2.0 moles of aluminum nitrate?

9. Potassium bromide reacts with chlorine gas to produce potassium chloride and bromine gas.
   How many moles of bromine gas can be produced from 100. grams of potassium bromide?

10. Propane combines with oxygen in BBQs. How many grams of propane are needed to produce 156 g of water?

11. Silver nitrate combines with barium chloride to produce silver chloride and barium nitrate.
    How many grams of silver chloride are produced from 5.0 g of silver nitrate reacting with excess barium chloride?

12. How many grams of potassium chloride are produced if 25.0 g of potassium chlorate?

13. Nitrogen reacts with hydrogen to produce ammonia gas. How many grams of hydrogen are necessary to completely react with 50.0 g of nitrogen?

14. Sulfuric acid reacts with sodium hydroxide in a neutralization reaction. How many grams of acid are needed to completely react with 136.0 g of sodium hydroxide?

15. Glucose reacts with oxygen in a combustion reaction. If 100.00 g of glucose is burned, how many grams of carbon dioxide and of water are formed?

16. Reusable booster rockets of of the U.S. space shuttle use a mixture of aluminum and ammonium perchlorate NH_4ClO_4 for fuel.
    What mass of ammonium perchlorate should be used in the fuel mixture for each kg of aluminum?

aluminum + ammonium perchlorate → aluminum oxide + aluminum chloride + nitrogen monoxide + water