EXERCISE 25
CHEMICAL EQUATIONS AND MOLES

DIRECTIONS: On a separate sheet of paper, do the following:

1. How many grams of cadmium nitrate will react with 6.678 grams of sulfuric acid?
   $Cd(NO_3)_2 + H_2SO_4 \rightarrow CdSO_4 + HNO_3$
2. How many atoms of iron will react with an excess of sulfur to form 3 098 grams of iron (II) product? $Fe + S \rightarrow FeS$
3. How many grams of silver nitrate are needed to react with 34.654g of sodium bromide?
   $AgNO_3 + NaBr \rightarrow AgBr + NaNO_3$
4. Aluminum reacts with oxygen to form the oxide. If we want to produce 45.67kg of the oxide how much of each is needed?
   $Al + O_2 \rightarrow Al_2O_3$
5. How many grams of mercury are formed from the decomposition of 6 908g of mercury (II) oxide? $HgO \rightarrow Hg + O_2$
6. How many liters of nitrogen at STP are needed to react with 9.000 7g of aluminum?
   $Al + N_2 \rightarrow AlN$
7. How many grams of sodium hydroxide are needed to react with 2.22kg of barium bromide? $NaOH + BaBr_2 \rightarrow NaBr + Ba(OH)_2$
8. How many molecules of hydrogen are needed to react with 55.55g iron (III) oxide? $H_2 + Fe_2O_3 \rightarrow H_2O + Fe$
9. How many grams of zinc are needed to react with .000 006 785 grams of silver sulfate?
   $Zn + Ag_2SO_4 \rightarrow ZnSO_4 + Ag$
10. How many grams of silicon are needed to react with 23.90g of sulfur?
    $Si + S \rightarrow SiS_2$
11. How much silver phosphate is produced if 10.0g of silver acetate is reacted with an excess of sodium phosphate? $AgC_2H_3O_2 + Na_3PO_4 \rightarrow Ag_3PO_4 + NaC_2H_3O_2$
12. What mass of sodium hydroxide is needed to completely react with 25.0g of sulfuric acid? $NaOH + H_2SO_4 \rightarrow Na_2SO_4 + H_2O$
13. Sulfur (IV) oxide reacts with water to form sulfurous acid, how much sulfurous acid is produced from 2.75g of sulfur (IV) oxide and an excess of water?
    $SO_2 + H_2O \rightarrow H_2SO_3$
14. 739g of bromine reacts with potassium iodide in excess. How much of each product is formed in the reaction? $Br_2 + KI \rightarrow KBr + I_2$
15. 27.0g of silver oxide decomposes into silver and oxygen. How many liters of oxygen are produced? $Ag_2O \rightarrow Ag + O_2$