

NAME: _____ Period: _____

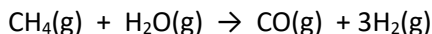
Ch 12 Test
Stoichiometry
Carmel High/Dooner

Show all work on separate sheets and box your answers. Place final answer on the line provided with correct sig figs.

1. _____ Rust(Fe_2O_3) is produced when iron (Fe) reacts with oxygen(O_2)
$$4\text{Fe(s)} + 3\text{O}_2\text{(g)} \rightarrow 2\text{Fe}_2\text{O}_3\text{(s)}$$

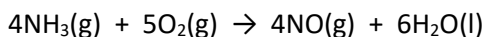
How many grams of Fe_2O_3 are produced when 12.0 g of iron rusts?

2. _____ Hydrogen gas can be made by reacting methane(CH_4) with high temperature steam:



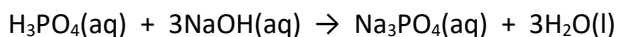
How many hydrogen molecules are produced when 158 g of methane reacts with steam?

3. _____ Ammonia(NH_3) reacts with oxygen(O_2) to produce nitrogen monoxide (NO) and water:



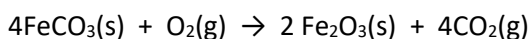
How many liters of NO are produced when 1.40L of oxygen reacts with ammonia?

4. _____ Phosphoric acid reacts with sodium hydroxide according to the equation:



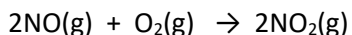
If 1.75 mol H_3PO_4 is made to react with 5.00 mol NaOH, identify the limiting reagent.

5. _____ If 75.0 g of siderite ore(FeCO_3) is heated with an excess of oxygen, 45.0 g of ferric oxide(Fe_2O_3) is produced:

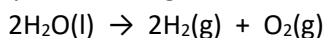


What is the percent yield of this reaction?

6. _____ Nitrogen monoxide and oxygen gas combine to form the brown gas nitrogen dioxide, which contributes to photochemical smog. How many liters of nitrogen dioxide are produced when 34L of oxygen reacts with an excess of nitrogen monoxide. Assume conditions of STP:



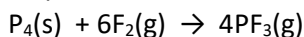
7. _____ How many molecules of oxygen are produced when 29.2 g of water is decomposed by electrolysis according to this balanced equation:



8. _____ What is the percent yield if 13.1 g CaO is actually produced when 24.8 g CaCO_3 is heated?

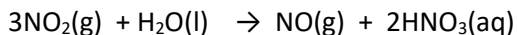


9. _____ Phosphorus trifluoride is formed from its elements:



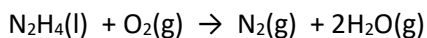
How many grams of fluorine are needed to react with 6.20 g of phosphorus?

10. _____ Nitric acid is formed by the reaction of nitrogen dioxide with water:



How many moles of water are needed to react with 8.4 mol of NO_2 ?

11. _____ Hydrazine(N_2H_4) is used as rocket fuel. It reacts with oxygen to form nitrogen and water:



How many liters of N_2 (at STP) form when 1.0 kg N_2H_4 reacts with 1.0 kg O_2 ?

12. _____ In the reaction above, what is the excess reagent and how many grams of it remain after the reaction?

