Name:_____ Date: _____

Limiting Reactant Model 2

$$2H_2 + O_2 \rightarrow 2 H_2O$$
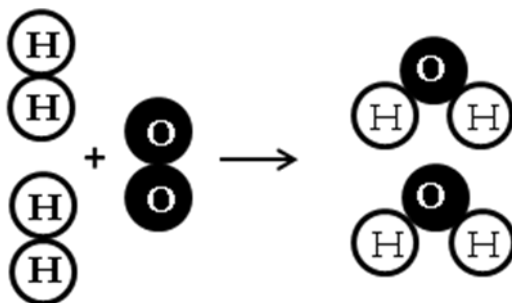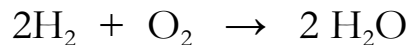
Reactants		Products
2 molecules H_2	1 molecule O_2	2 molecules H_2O
2 moles H_2	1 moles O_2	2 moles H_2O
4 g H_2	32 g O_2	36 g H_2O

12) Using the information given in Model 2, how many hydrogen (H_2) and oxygen (O_2) **molecules** would you need to produce 2 **molecules** of water (H_2O)?

13) Using the information given in Model 2, how many **moles** of hydrogen and oxygen molecules would you need to produce 2 **moles** of water?

14) Using the information given in Model 2, how many **grams** of hydrogen and oxygen molecules would you need to produce 36 **grams** of water?

15) Suppose you have 10 molecules of hydrogen and 24 molecules of oxygen.

    a) How many molecules of water could you produce?

    b) What reactant would be the limiting reactant? Explain your reasoning.

16) You have 72 molecules of H_2 and an unlimited supply of O_2 molecules.

    a) How many molecules of H_2O can you make?

    b) How many molecules of O_2 would you use in the reaction?

17) Suppose you have 14 moles of H_2 molecules and 14 moles of O_2 molecules.

a) How many moles of H_2O can you make?

b) What reactant would be the limiting reactant?   Explain your reasoning.

18) You have 30 moles of oxygen gas molecules.

a) How many moles of hydrogen molecules would you need to react completely with the oxygen molecules?

b) What is the maximum number of moles of water you could produce with 30 moles of O_2?

19) You have 16 grams of H_2 and 64 grams of O_2.

    a) Identify the limiting reactant.   Justify your answer with calculations or an explanation.

    b) What is the maximum amount, in grams, of water that could be produced from 16 grams of H_2 and 64 grams of O_2.

20) Explain how you could identify the limiting reactant in a chemical reaction.

21) It is possible to use stoichiometry to calculate the amount of product produced in a chemical reaction.   When doing such a calculation, would it be better base your calculation on the amount of limiting reactant or on the amount of excess reactant?   Justify your answer.