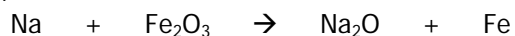


NAME \_\_\_\_\_

*Chemistry II Worksheet*  
*Limiting Reactants & % Yields*

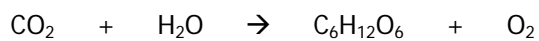
**INSTRUCTIONS:** Work these problems on theoretical yield & limiting reactants. Use scratch paper as needed. A Periodic Table would be most useful here, but please *try* to do these *without* your Yellow Card. As always, the only resource you *may not* use is *each other*.

1. The reaction between solid sodium and iron (III) oxide is one in a series of reactions that inflates an automobile bag.



If 100.0 g of Na and 100.0 g of  $\text{Fe}_2\text{O}_3$  are used in this reaction, determine the

- a) the mass of the solid iron produced
- b) the mass of the excess that remains after the reaction is complete
2. Photosynthesis reactions in green plants use carbon dioxide and water to produce glucose ( $\text{C}_6\text{H}_{12}\text{O}_6$ ) and oxygen.



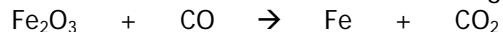
If a plant has 88.0 g of carbon dioxide and 64.0 g of water available for photosynthesis, determine the

- a) mass of the glucose produced
- b) mass of the excess reactant left over after the reaction is complete
3. An alkaline battery produced electrical energy according to the following equation:

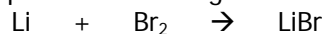


Determine the mass of  $\text{Zn(OH)}_2$  produced if 25.0 g Zn and 30.0 g  $\text{MnO}_2$  are used.

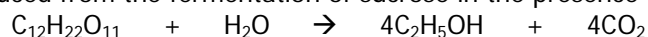
4. Iron is obtained commercially by the reaction of hematite ( $\text{Fe}_2\text{O}_3$ ) with carbon monoxide. How many grams of iron are produced if 75.0 g of hematite react with 85.0 g of carbon monoxide?



5. Lithium reacts spontaneously with bromine to produce lithium bromide. How many grams of lithium bromide will be produced if 25.0 g of lithium and 25.0 grams of bromine react?

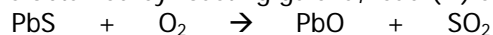


6. Ethanol is produced from the fermentation of sucrose in the presence of enzymes.



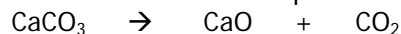
Determine the theoretical and % yields of ethanol if 684 g of sucrose undergoes fermentation and 349 g of ethanol is obtained.

7. Lead (II) oxide is obtained by roasting galena, lead (II) sulfide in air.



Determine the theoretical yield & % yield of PbO if 200.0 g of PbS are heated and 170.0 g of PbO are obtained.

8. Upon heating, calcium carbonate decomposes to produce calcium oxide and carbon dioxide.



- Determine the theoretical yield if 235.0 g of  $\text{CaCO}_3$  is heated.
- Determine the % yield if 97.5 g of  $\text{CaCO}_3$  is obtained.