46 Minutes of Stoichiometry Fun!!!
If you can understand these two problems, you are headed in the right direction!!

1.) 10.0 grams of octane are allowed to react with a 95.0 liter volume of air (which is 20% oxygen by volume).

_____A) What is the Limiting Reactant? **Oxygen**

_____B) How many liters of carbon dioxide will form (assume STP)? **12.2 liters**

_____C) How many grams of water will form? **11 grams**

_____D) What mass of excess reactant is actually used in the reaction? **7.73 grams**

_____E) What mass of excess reactant is left unused after the reaction is complete? **2.27 grams**

_____F) If after conducting this experiment in the laboratory you were able to recover 10.2 grams of water, what is your percent yield for the experiment? To find percent yield, you …….. **93%**

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2) Use the following word equation to solve this stoichiometry problem:
ferrous chloride + potassium dichromate + hydrochloric acid → ferric chloride + potassium chloride + chromium (II) chloride + water

14.0 grams of ferrous chloride are allowed to react with 30.0 mL of 0.500 M potassium dichromate and excess hydrochloric acid,

_____A) How many grams of chromium (II) chloride will form? **3.38 g**

_____B) How much of the excess reactant remains unused after the reaction? (Note: Answer should be in grams if ferrous chloride is excess. Answer should be in mL if potassium dichromate is excess.) **2.5 ml**

_____C) After performing the experiment described above Suzie was able to collect 2.78 grams chromium (II) chloride. What is her percent yield for the experiment? **82.2 %**

NAME_____

HAVE EXCESS FUN WITH THIS LIMITING REACTANT ACTIVITY (on your own paper) !!!

1) 10.0 grams of sodium phosphate is added to 10.0 grams of silver nitrate.

A) What is the LR? **Silver nitrate**
What is the ER? **Sodium phosphate**
(Remember: for LR and ER, convert each to moles and compare to the "recipe")

B) What mass of insoluble product forms? **8.21 grams**
(Remember: this is a stoich problem)

C) What mass of ER reacts? **3.21 grams**
(Remember: this is another stoich problem)

D) What mass of ER remains unreacted after the reaction is complete? **6.79 grams**
(Remember: this is simply a subtraction problem)

2) 20.0 grams of nickel (III) oxide is added to 20.0 liters of carbon dioxide gas at STP.

A) What is the LR? **Nickel(III) oxide**
What is the ER? **Carbon dioxide**

B) What mass of product forms? **35.8 grams**

C) What mass or volume of ER reacts? **8.1 liters**
(Note: Answer should be in grams if nickel (III) oxide is excess. Answer should be in L if carbon dioxide is excess.)

D) What mass or volume of ER remains unreacted after the reaction is complete?
(Note: Answer should be in grams if nickel (III) oxide is excess. Answer should be in L if carbon dioxide is excess.) **11.9 liters**

3) 50.0 mL of 2.5 M phosphoric acid are added to 1.00 gram of sodium carbonate.

A) What is the LR? **Sodium carbonate**
What is the ER? **Phosphoric acid**

B) What volume of gaseous product forms? **.21 liters**

C) What mass or volume of ER reacts? **2.5 ml**
(Note: Answer should be in grams if sodium carbonate is excess. Answer should be in mL if phosphoric acid is excess.)

D) What mass or volume of ER remains unreacted after the reaction is complete?
(Note: Answer should be in grams if sodium carbonate is excess. Answer should be in mL if phosphoric acid is excess.)
47.5 ml