Limiting Reactant Problems Practice

$$2Fe_2S_3 + 3C \rightarrow 4Fe + 3CS_2$$
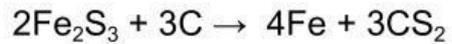
a) How many grams of iron can be made from 119 g of Fe_2S_3 and 12.7 g C? Identify the limiting reactant and the excess reactant.

$$\underline{\qquad}\Big|\underline{\qquad}\Big|\underline{\qquad}\Big|\underline{\qquad} = \underline{\qquad}$$

$$\underline{\qquad}\Big|\underline{\qquad}\Big|\underline{\qquad}\Big|\underline{\qquad} = \underline{\qquad}$$

b) How many grams of our excess reactant are used up after the reaction runs to completion?

$$\underline{\qquad}\Big|\underline{\qquad}\Big|\underline{\qquad} = \frac{\underline{\quad}}{\underline{\quad}} \quad \underline{\qquad}$$

c) How many grams of our excess reactant are left over after the reaction runs to completion?

$$\underline{\qquad} - \underline{\qquad} = \underline{\qquad}$$

d) Suppose you only produce 35.6 g of Fe. What is your % yield? Ans $\underline{\qquad}$

$$\underline{\qquad}\Big|\underline{\qquad}\Big|\underline{\qquad} = \frac{\underline{\quad}}{\underline{\quad}} \quad \underline{\qquad}$$

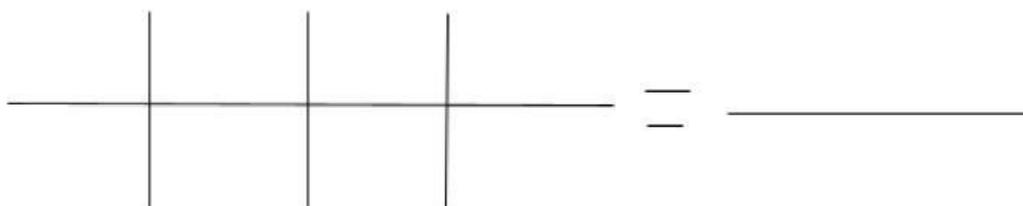_____NH$_3$ + _____O$_2$ → _____NO + ___H$_2$O
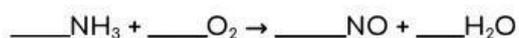
In the reaction above, 3.25 grams of NH$_3$ are allowed to react with 3.50 grams of O$_2$

<u>A.</u> Balance the equation and determine which is the limiting reactant from the reaction above by calculating how many grams of H$_2$O could be produced from each reactant.

$$\frac{\quad\quad}{\quad}\Bigg|\frac{\quad}{\quad}\Bigg|\frac{\quad}{\quad} = \underline{\quad\quad\quad}$$

$$\frac{\quad\quad}{\quad}\Bigg|\frac{\quad}{\quad}\Bigg|\frac{\quad}{\quad} = \underline{\quad\quad\quad}$$
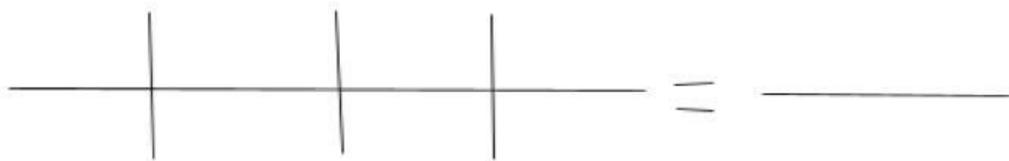
<u>B.</u> How many grams of H$_2$O are formed during the reaction?

<u>C.</u> How much of our excess reactant gets used up in the process of making this many grams of H$_2$O?
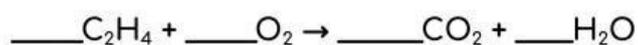
$$\frac{\quad\quad}{\quad}\Bigg|\frac{\quad}{\quad}\Bigg|\frac{\quad}{\quad} = \underline{\quad\quad\quad}$$

<u>D.</u> How much of our excess reactant remains after the reaction runs to completion?

_____ - _____ = _____

<u>E.</u> If this reaction was observed in the lab and it was found that only 2.0 grams of H$_2$O were produced, what would be the % yield of H$_2$O?

$$\frac{\quad\quad}{\quad}\Bigg|\frac{\quad}{\quad}\Bigg|\frac{\quad}{\quad} = \underline{\quad\quad\quad}$$

$$\underline{\quad}C_2H_4 + \underline{\quad}O_2 \rightarrow \underline{\quad}CO_2 + \underline{\quad}H_2O$$

In the reaction above, a scientist conducted an experiment with 0.176 moles of ethylene (C_2H_4) and 0.102 moles of O_2.

A. Balance the equation and determine which is the limiting reactant from the reaction above by calculating how s moles of H_2O can be produced by each reactant. Identify both your Limiting reactant and your excess reactant.

$$\underline{\hspace{4cm}} \frac{}{} \qquad = \underline{\hspace{4cm}}$$

$$\underline{\hspace{4cm}} \frac{}{} \qquad = \underline{\hspace{4cm}}$$

B. How many moles of H_2O are produced from the reaction? What is your limiting reactant and what is your excess reactant?

C. How many moles of our excess reactant gets used up in the process of making this many moles of H_2O?

$$\underline{\hspace{5cm}} \frac{}{} \underline{\hspace{2cm}} = \underline{\hspace{3cm}}$$

D. How many moles of our excess reactant remain after the reaction runs to completion?

$$\underline{\hspace{3cm}} - \underline{\hspace{3cm}} = \underline{\hspace{3cm}}$$

E. If this reaction was observed in the lab and it was found that only 0.055 moles of H_2O were produced, what would be the % yield of H_2O? Round to nearest hundredth.

$$\underline{\hspace{5cm}} \frac{}{} \underline{\hspace{2cm}} \frac{}{} = \underline{\hspace{3cm}}$$