Lab: Episode 803—Datasheet **Name**_____

In this lab, iron and copper (II) sulfate react according to the following BALANCED equation.

$$Fe + CuSO_4 \rightarrow Cu + FeSO_4$$

Data:

mass of copper (II) sulfate	
mass of iron filings	
mass of filter paper and Cu	
mass of filter paper	
mass of Cu	

color of decanted liquid _____

Conclusions:

1. Calculate the number of moles of iron used in the reaction. SHOW ALL WORK!

2. Calculate the number of moles of copper (II) sulfate used in the reaction. SHOW ALL WORK!

3. Using your answer to number 1 and the balanced equation, calculate the theoretical yield of copper produced in this lab. SHOW ALL WORK!

4. Using your answer to number 2 and the balanced equation, calculate the theoretical yield of copper produced in this lab. SHOW ALL WORK!

5. Based on your answers to numbers 3 and 4, which reactant is your limiting reactant? _____ Which reactant is your excess reactant? _____ What is the theoretical yield of copper produced in this lab? _____

6. In this experiment, when the copper (II) sulfate dissolved, the water turned a _____ color. After the reaction was over, was the decanted liquid colorless or did some of the color remain? _____ Would that indicate that all of the copper (II) sulfate was used up in the experiment or that some of the copper (II) sulfate was unused? _____ Based on these observations, which reactant is your limiting reactant? _____ Which reactant is your excess reactant? _____

7. Use your answer to number 5 and the actual amount of copper produced in the experiment from your data table to calculate the % yield of copper in the experiment.