Name: _____ Section: _____

Data and Calculations

Mass of empty test tube: _____

Mass of the test tube + copper oxide before heating _____

Mass of the test tube + solid after 20 minutes of heating _____

Mass of the test tube + solid after 30 minutes of heating: _____

Mass of the test tube + solid after 40 minutes of heating:* _____
*if necessary; add more lines if needed

Mass of the copper oxide *before* you heated: _____

Final mass of the copper metal powder: _____

Mass that disappeared during the heating: _____

What element or compound disappeared
from the copper oxide during heating? _____

Moles of copper in the pellet: _____

SHOW CALCULATION:

Moles of oxide that escaped: _____

SHOW CALCULATION:

Empirical formula of the initial copper oxide: _____

SHOW CALCULATION:

Mass percentage of copper in copper oxide: _____

SHOW CALCULATION:

Name: _____ Section: _____

Post-lab Questions

1. Write the balanced chemical equation for the reaction of your oxide using the experimentally determined empirical formula.

2. Imagine you had just discovered copper. Which of the following formulas would be *possible* guesses (however unlikely) for the empirical formula of copper oxide? Which would be *good* guesses if you used the periodic table as a guide to understanding copper's probable charge? Briefly explain your choices below.

   $Cu_{10}O$ Cu_5O Cu_3O_2 Cu_2O

   CuO Cu_2O_3 CuO_2 CuO_{11}

3. A sample of an iron oxide weighing 1.996 g yields 1.396 g of iron on reaction with methane gas. Determine the percent composition and the empirical formula of the iron oxide from this data. SHOW ALL CALCULATIONS! Random guessing will NOT earn you any credit.