



Name \_\_\_\_\_ Block \_\_\_\_\_ Date \_\_\_\_\_

## Lab: Copper + Silver Nitrate Reaction

### Data Sheet and Calculations

(Show all work, include correct units and significant figures!)

	Data	Mass (g)
Day 1	Mass of clean, dry 100 mL beaker	
	Mass of copper before reaction	
Day 2	Mass of copper after reaction	
Day 3	Mass of dry beaker w/silver crystals	

1. What evidence did you observe that confirms that a chemical reaction occurred?

Day One (describe the contents of your beaker, giving at least two distinct observations):

i.

ii.

Day Two (completely describe the contents of your beaker):

2. Write a balanced chemical equation for the reaction that occurred.

3. Calculate the mass of copper that reacted.

4. Calculate the number of moles of copper that reacted.

5. Calculate the mass of silver produced.

6. Calculate the number of moles of silver produced.

(over)

7. From the previous calculations, determine the whole-number mole ratio of silver to copper (divide: mol Ag/mol Cu).

8. Compare the mole ratio of silver to copper from the balanced chemical equation to the mole ratio determined in #7(above). How close an agreement is there?

9. Using the mass of copper that reacted, calculate the theoretical yield of silver that should have been produced. (A mass-mass, stoichiometric problem.)

10. Calculate the percent yield of silver:

### Error Analysis

Offer two errors inherent to this investigation that would have affected the theoretical or actual yield of silver. Use the format a-->b-->c. [Do not list "human error" or faulty equipment! Ask yourself: What might have occurred (or not have occurred) during your investigation that could have given you erroneous data...]

Example: The copper wire had some tarnish on it after the reaction, probably some sort of copper oxide compound. Since this oxide would have added to the final measured mass of the of the copper wire, it would have appeared that less copper had reacted than we had thought. Therefore our theoretical yield of silver would have been less than expected.

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2. \_\_\_\_\_  
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