

**MOLARITY LABS I & II & III**

Name: \_\_\_\_\_ partner: \_\_\_\_\_

**Part I:** Purpose: To determine the molarity of a given NaCl solution using a sample of the solution, a graduated cylinder, an electronic balance and a petri dish.

Write down in numbered steps precisely what you did.

Record a data table below:

Calculations: (show all work neatly)

**Results: The NaCl solution was found to have a molarity of \_\_\_\_\_** ←

(Remember sig figs and units. Results will be graded for accuracy within 15%)

No units for results (above) = -1/2

(5 points)

**Part II:** Using a volumetric flask, an electronic balance, some water and some store-bought salt (NaCl), make up some 1.40 M NaCl solution and have it tested by Mr. A.

Grade =

show calculations

(5 points)

**Part III:** Using a volumetric flask, a graduated cylinder, some water and some prepared 3.10 M NaCl solution (colored green!), make up some 1.40 M NaCl solution & have it tested. Grade =

show calculations

## MOLARITY LABS I & II & III FOLLOW-UP QUESTIONS:

1. **Lab I:** (To determine the concentration of a given X M NaCl solution.)

Consider each of the following potential error sources. Answer:

- "H" if it would have caused your calculated value for X to come out too high,
- "L" if it would have caused it to come out too low, or
- "N" if it would have had no effect at all on your value.

- \_\_\_ There were a few salt crystals in your GC (graduated cylinder) when you started.
- \_\_\_ There were a few drops of water in your GC when you started.
- \_\_\_ There was a small pebble in your GC when you started.
- \_\_\_ There were a few salt crystals in your petri dish when you started.
- \_\_\_ There were a few drops of water in your dish when you started.
- \_\_\_ There was a small pebble in your dish when you started.
- \_\_\_ The salt was not completely dry in the end.
- \_\_\_ You accidentally used 48.45 for the molar mass of NaCl.
- \_\_\_ You thought the formula for sodium chloride was  $\text{Na}_2\text{Cl}$

Ans (IRO): H H H L L L L N N

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2. **Lab II:** (To make up some 1.40 M NaCl solution from granular salt and water.)

Consider each of the following potential error sources. Answer: "H" if it would have made your solution concentration come out too high, "L" if it would have made it come out too low, or "N" if it would have had no effect at all.

- \_\_\_ There were a few salt crystals in your flask when you started.
- \_\_\_ There were a few drops of water in your flask when you started.
- \_\_\_ There was a small pebble in your flask when you started.
- \_\_\_ You accidentally measured from the top of the meniscus instead of from the bottom.
- \_\_\_ You forgot to account for the mass of the paper upon which you weighed out your salt sample.
- \_\_\_ You accidentally used 48.45 for the molar mass of NaCl.

Ans (IRO): L L H H H N

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3. **Lab III:** (To make up some 1.40 M NaCl solution from some prepared 3.10 M NaCl soln.)

Consider each of the following potential error sources. Answer: "H" if it would have made your solution concentration come out too high, "L" if it would have made it come out too low, or "N" if it would have had no effect at all.

- \_\_\_ There were a few salt crystals in your graduated cylinder when you started.
- \_\_\_ There were a few drops of water in your graduated cylinder when you started.
- \_\_\_ There were a few drops of the 3.10 M NaCl soln in your graduated cylinder when you started.
- \_\_\_ There were a few drops of water in your volumetric flask when you started.
- \_\_\_ There were a few drops of the 3.10 M NaCl soln in your volumetric flask when you started.

Ans (IRO): L H H N N