**Quiz 3A**

# Directions: Answer each of the following questions. Be sure to use complete sentences where appropriate. For full credit be sure to show all of your work. Where appropriate answers should be boxed for clarity, written to the correct number of significant figures, and, include the proper units.

1. When baking a cake, the baking soda (sodium bicarbonate, NaHCO3), in the recipe is converted to sodium carbonate, carbon dioxide, and water. Baking soda is a(n) \_\_(compound/element)\_\_ and undergoes a \_\_(physical/chemical)\_\_ change during the baking process (2 points).
2. Are these data sets on chemical changes consistent with the law of conservation of mass (4 points)?
   1. A 7.5 g sample of hydrogen gas completely reacts with 60.0 g of oxygen gas to form 67.5 g of water.

|  |  |  |
| --- | --- | --- |
| Hydrogen + | Oxygen → | Water |
| 7.5 g + | 60.0 g = | 67.5 g |
| 67.5 g = | | 67.5 g |

Yes, this data set is consistent.

* 1. A 60.5 g sample of gasoline completely reacts with 243 g of oxygen to form 206 g of carbon dioxide and 88 g of water.

|  |  |  |  |
| --- | --- | --- | --- |
| Gasoline + | Oxygen → | Carbon Dioxide | Water |
| 60.5 g + | 243 g = | 206 g | 88 g |
| 303.5 g ≠ | | 294 g | |

No, this data set is not consistent.

1. What is a mixture (3 points)?

A mixture is a substance composed of two or more different types of atoms or molecules combined in variable proportions.

1. Fill in the missing information in the following table (8 points):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Symbol |  |  |  |  |
| Number of Protons | 21 | 127-74=53 | 82 | 92 |
| Number of Neutrons | 45-21=24 | 74 | 125 | 238-92=146 |
| Number of Electrons | 21-3=18 | 54 | 82 | 92 |
| Mass Number | 45 | 127 | 125+82=207 | 238 |

1. In this week’s experiment will you (3 points)
   1. take mass measurements? \_\_\_yes
   2. draw a graph? \_\_\_yes
   3. use the Bunsen burner? \_\_\_yes