

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## CHEMISTRY

### Atomic Mass & Ions

**Part 1: Determine the atomic mass** of the elements using the isotopes and abundances.

1. Change the abundances from % to the decimal.
2. Calculate the sum-product of the atomic mass (nuclide number) and decimal abundance.

1. Chlorine has two abundant isotopes.

**35-Cl = 76%**

**37-Cl = 24%**

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad}) = \underline{\quad} + \underline{\quad} = \underline{\quad} \text{ g/mol}$$

2. Sulfur has three abundant isotopes.

**32-S = 95%**

**33-S = 0.8%**

**34-S = 4.2%**

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad}) =$$

$$\underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad} \text{ g/mol}$$

3. Iron has four abundant isotopes.

**54-Fe = 5.8%**

**56-Fe = 91.7%**

**57-Fe = 2.2%**

**58-Fe = 0.3%**

$$(\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad}) + (\underline{\quad} \cdot \underline{\quad}) =$$

$$\underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad} \text{ g/mol}$$

4. Strontium has four abundant isotopes.

**84-Sr = 0.5%**

**86-Sr = 9.9%**

**87-Sr = 7.0%**

**88-Sr = 82.6%**

$$(\text{ } \cdot \text{ } ) + (\text{ } \cdot \text{ } ) + (\text{ } \cdot \text{ } ) + (\text{ } \cdot \text{ } ) =$$

$$\text{ } + \text{ } + \text{ } + \text{ } = \text{ } \text{ g/mol}$$

**Part 2: Ions.** Determine if the atom is a cation or anion. Type **C** for cation. Type **A** for anion. Determine the number of protons, neutrons, and electrons in the atom by using the nuclide number and the charge. Protons have a +1 charge. Electrons have a -1 charge.

	Cation Or Anion?	Z	#P	#N	#e-
56-Fe <sup>2+</sup>					
21-Na <sup>+</sup>					
32-S <sup>2-</sup>					
27-Al <sup>3+</sup>					
35-Cl <sup>-</sup>					
52-Mn <sup>4+</sup>					
19-F <sup>1-</sup>					
230-Th <sup>4+</sup>					
138-Ba <sup>2+</sup>					
14-N <sup>3-</sup>					