**Date**

**Period**

**0216 – Practice**

**Atomic Notation**

**Name**

**Fill in all of the empty boxes**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **isotope name** | **atomic notation** | **atomic number** | **mass number** | **number of protons** | **number of neutrons** | **number of electrons** |
| **hydrogen-1** | **H** | **1** | **1** | **1** | **0** | **1** |
| **hydrogen-2** | **H** | **1** | **2** | **1** | **1** | **1** |
| **hydrogen-3** | **H** | **1** | **3** | **1** | **2** | **1** |
| **nitrogen-14** | **N** | **7** | **14** | **7** | **7** | **7** |
|  | **N** | **7** | **15** | **7** | **8** | **7** |
|  | **N** | **7** | **15** | **7** | **8** | **9** |
|  | **N** | **7** | **15** | **7** | **8** | **10** |
|  | **O** | **8** | **16** | **8** | **8** | **8** |
|  | **O** | **8** | **16** | **8** | **10** | **10** |
|  | **Li** | **3** | **7** | **3** | **4** | **2** |
| **helium-3** | **He** | **2** | **3** | **2** | **1** | **2** |
| **helium-4** | **He** | **2** | **4** | **2** | **2** | **2** |
| **fluorine-19** | **F** | **9** | **19** | **9** | **10** | **9** |
| **sulfur-33** | **S** | **16** | **33** | **16** | **17** | **16** |
| **sulfur-34** | **S** | **16** | **34** | **16** | **18** | **16** |
| **carbon-14** | **C** | **6** | **14** | **6** | **8** | **6** |
|  | **Cl** | **17** | **35** | **17** | **18** | **18** |
|  | **Cu** | **29** | **63** | **29** | **34** | **27** |
| **uranium-238** | **U** | **92** | **238** | **92** | **146** | **92** |

Atomic Notation – Steps of Process

*Write the atomic symbol, atomic number, mass number, number of protons, neutrons and electrons and write the atom in atomic notation*

Calcium-43

|  |  |
| --- | --- |
| **Example** | **Step** |
| **Ca** | * Find the element & atomic symbol on the periodic table |
| **20** | * Find the atomic number on the periodic table |
| **43** | * Find the mass number in name (calcium-43, 43 is mass number) * It is NOT the same as the atomic weight on the periodic table |
| **Np = 20** | * **Np** = atomic number |
| **Nn = 43 – 20 = 23** | * **Nn** = mass number - **Np** |
| **Ne = 20 – (0)** | * **Ne** = **Np** – (charge) * If no charge is given in question, there is no charge * During calculations, put charge in parentheses to avoid mistakes in sign |
| **Ca** | * Write in atomic notation   **atomic symbol** |

If the question is asked about an atom already in atomic notation, the atomic symbol, atomic number and mass number can be read directly from the atomic notation.

*Write the atomic symbol, atomic number, mass number, charge and write the atom in atomic notation*

protons (p) = 16

neutrons (n) = 20

electrons (e) = 18

|  |  |
| --- | --- |
| **Example** | **Step** |
| **Sulfur, S** | * Find the element & atomic symbol on the periodic table |
| **atomic #**  **= p**  **= 16** | * Atomic number = number of protons |
| **mass #**  **= p + n**  **= 16 + 20**  **= 36** | * Mass number = number of protons + number of neutrons |
| **charge**  **= p – e**  **= 16 – 18**  **= – 2** | * Charge = number of protons – number of electrons |
| **S** | * Write in atomic notation   **atomic symbol** |

**Atomic Notation Worksheet (Answers)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **isotope name** | **atomic notation** | **atomic number** | **mass number** | **number of protons** | **number of neutrons** | **number of electrons** |
| **hydrogen-1** | **H** | **1** | **1** | **1** | **0** | **1** |
| **hydrogen-2** | **H** | **1** | **2** | **1** | **1** | **1** |
| **hydrogen-3** | **H** | **1** | **3** | **1** | **2** | **1** |
| **nitrogen-14** | **N** | **7** | **14** | **7** | **7** | **7** |
| **nitrogen-15** | **N** | **7** | **15** | **7** | **8** | **7** |
| **nitrogen-15**  **dianion** | **N** | **7** | **15** | **7** | **8** | **9** |
| **nitrogen-15**  **trianion** | **N** | **7** | **15** | **7** | **8** | **10** |
| **oxygen-16** | **O** | **8** | **16** | **8** | **8** | **8** |
| **oxygen-18**  **dianion** | **O** | **8** | **18** | **8** | **10** | **10** |
| **lithium-7**  **cation** | **Li** | **3** | **7** | **3** | **4** | **2** |
| **helium-3** | **He** | **2** | **3** | **2** | **1** | **2** |
| **helium-4** | **He** | **2** | **4** | **2** | **2** | **2** |
| **fluorine-19** | **F** | **9** | **19** | **9** | **10** | **9** |
| **sulfur-33** | **S** | **16** | **33** | **16** | **17** | **16** |
| **sulfur-34** | **S** | **16** | **34** | **16** | **18** | **16** |
| **carbon-14** | **C** | **6** | **14** | **6** | **8** | **6** |
| **chlorine-35 anion** | **Cl** | **17** | **35** | **17** | **18** | **18** |
| **copper-63 dication** | **Cu** | **29** | **63** | **29** | **34** | **27** |
| **uranium-238** | **U** | **92** | **238** | **92** | **146** | **92** |