Practice Problems Isotopes

1.) How many protons and neutrons are in the nuclei of 204Tl atoms?

2.) Write the complete symbol for an atom with the following characteristics

1. contains 19 electrons and 20 neutrons
2. nitrogen atom with 8 neutrons
3. bromine atom with a mass number of 80
4. iodine atom with 181 subatomic particles
5. copper atom with 65 nucleons

3.) Magnesium occurs in nature in three isotopic forms:

Relative mass

24Mg (78.70% abundance) 23.985 amu

26Mg (11.17% abundance) 25.983 amu

25Mg (10.13% abundance) 24.986 amu

Calculate the atomic mass of Magnesium from these data

6.) Natural samples of copper contain two isotopes.

63Cu has a mass of 62.930 amu and

65Cu has a mass of 64.928 amu.

The percent abundance of 63Cu is 69.09%.

Calculate the atomic mass of copper.

7) The following table is data from a sample of element X

|  |  |  |
| --- | --- | --- |
| Isotope | Numbers of atoms | Mass of sample |
| x-1 | 1.883x10-16 | 3.44g |
| x-2 | 1.9948x10-17 | 2.99g |
| x-3 | 1.7789x10-15 | 4.39g |

a. Calculate the % of atoms of each isotope.

a) x-1

b) x-2

c) x-3

b. Calculate the mass of a single atom of each isotope.

a) x-1

b)x-2

c)x-3

c. Calculate the atomic mass of element x for this sample.