**4.3 Distinguishing Among Atoms**

Review:

Protons, neutrons and electrons are the sub particles of the atom

Neutrons and protons are more massive than electron (determine the mass of atom)

**Atomic number**

Number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the element

Easily distinguish elements because they all have different number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

As long as there is no charge to the element, electrons \_\_\_\_\_\_\_\_\_\_ protons

What is the atomic number of the following

1. Hydrogen

2. Oxygen

3. Boron

4. Carbon

How many protons and electrons are the following

1. Nitrogen

2. Magnesium

3. Calcium2+ (note the 2+ (+ for positive- which particle is positive))

4. Fluorine1- (note the 1- (- for negative- which particle is negative))

**Mass Number**

Protons \_\_\_\_\_\_\_\_ neutrons

What is the mass number of the following:

Chlorine (17 protons, 18 neutrons)

Helium (2 protons, 2 neutrons)

Lithium (3 protons, 4 neutrons)

Mercury (80 protons, 84 neutrons)

**Isotopes**

\_\_\_\_\_\_\_\_\_\_\_ number of protons, \_\_\_\_\_\_\_\_\_\_\_\_\_ number of neutrons

Average of all isotopes and their abundance is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

These atoms still have same chemical properties because it is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that give the chemical behavior

What is the mass number of the following Neon’s

1. 10 protons, 10 neutrons

2. 10 protons, 11 neutrons

3. 10 protons, 9 neutrons

4. 10 protons, 12 neutrons

Looking at the Periodic Table, which isotope is most abundant?

Boron has two known isotopes, Boron-10 and Boron-11. The atomic mass of boron is 10.81 amu, which isotope is more abundant?

Calculate the atomic mass of carbon-13 (1.11% natural abundance) and carbon-12 (99.89% abundance)

Calculate the atomic mass, you need to multiply the mass number of each isotope by its natural abundance (move decimal over 2 to the left) and add all products