

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

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

## Notes: Mass Numbers and Atomic Mass

Who performed the experiments that proved the existence of the neutron?

\_\_\_\_\_

What previously held idea about the atom did this discovery disprove?

\_\_\_\_\_

Define **isotope**: \_\_\_\_\_

\_\_\_\_\_

What are the relative masses of the three subatomic particles:

Protons \_\_\_\_\_ Neutrons \_\_\_\_\_ Electrons \_\_\_\_\_

Why do electrons not count towards the mass of an atom? \_\_\_\_\_

\_\_\_\_\_

Define **mass number**: \_\_\_\_\_

\_\_\_\_\_

Is mass number the same thing as atomic mass? \_\_\_\_\_

**In the space below, write the equation for determining the number of neutrons in an atom of a certain isotope.**

**Fill in the blanks with the correct number of neutrons for each isotope?**

Carbon-13 has \_\_\_\_ neutrons      Uranium-239 has \_\_\_\_ neutrons

Hydrogen-3 has \_\_\_\_ neutrons      Boron-11 has \_\_\_\_ neutrons

Fluorine-19 has \_\_\_\_ neutrons      Chlorine-37 has \_\_\_\_ neutrons

**Write the name of the correct isotope for each of the combinations of protons and neutrons below:**

80 protons and 121 neutrons = \_\_\_\_\_

20 protons and 20 neutrons = \_\_\_\_\_

30 protons and 35 neutrons = \_\_\_\_\_

2 protons and 3 neutrons = \_\_\_\_\_

18 protons and 22 neutrons = \_\_\_\_\_

## Avogadro's Number:

What do we call a group of this many particles? \_\_\_\_\_

Why is the number of neutrons in an element not listed on the periodic table?

What is consistent within a sample of any given element?

Define **atomic mass**: \_\_\_\_\_

How do you calculate the atomic mass of an element given the percentage of each isotope?

In a mole of chlorine, about 75.0% of the atoms are chlorine-35, and about 25.0% of the atoms are chlorine-37. What is the approximate atomic mass of chlorine?

In a mole of boron, about 80.0% of the atoms are boron-11, and about 20.0% of the atoms are boron-10. What is the approximate atomic mass of Boron based on this data?

In a sample of an unknown element, X, the ratio of isotopes is examined. It is determined that 89.80 % of the sample is composed of  $^{112}\text{X}$ , and the other 10.20% is composed of  $^{114}\text{X}$ . Based on this data, what would be the atomic mass of element X?