Atomic Mass, Number and Isotopes

Name	Period	Seat #

/10

Use the terms in the box to complete the following paragraph about atomic mass. Terms may be used more than once.

number	standard	neutron(s)	proton(s)	mass

The electron has very little mass compared to the _____ or _____. The mass of the atom depends on the nucleus and how many _____ and _____ it has. The sum of the protons and neutrons is the mass _____ of an atom. The number of neutrons in an atom can be found by subtracting the atomic number from the _____ number. The mass of the atom is so small that there is a measurement called the atomic _____ unit.

Use the terms in the box to complete the following paragraph about isotopes. Terms may be used more than once.

many	mixtures	protons	neutrons	between	number
element	one	isotopes	six protons	electrons	

The nuclei of all atoms of a given element always have the same number of _____. They will also have the same number of _____ around the nucleus. Some atoms may have more or fewer _____ than will other atoms of the same element. Atoms of the same element with different numbers of neutrons are called _____. Hydrogen has three isotopes. A hydrogen atom may contain zero, one, or two _____. Every atom of carbon must contain _____, but some contain six neutrons and others have eight neutrons. Some elements have only _____ natural isotope; however, other elements may have _____ isotopes.

One way of showing the difference between isotopes of an element is to put the mass _____ after the name of the element. The second way of showing an isotope is to write the mass number and the atomic number with the symbol of the _____. In nature, most elements are _____ of isotopes. In chlorine gas, there are two isotopes and the average mass of this element is _____ the two

Directions: Complete the following chart and answer the questions below.

Remember:
Element Name – Mass # (Carbon-12)
Atomic # = #Protons = #Electrons
Atomic Mass = #Protons + #Neutrons (*rearrange it to find #protons, or #neutrons)*

Element Name	Atomic Number	# of Protons	# of Neutrons	# of Electrons	Mass Number
Carbon-					12
	8		8		
Hydrogen-					1
		6			14
Hydrogen-			2		
Nitrogen-					14
			1		2
	92		146		
Cesium-			82		
	11		12		
		47			108
Tungsten-			110		
			45		80
		24			52
			89		152
Silver-					107
	76		114		

1) How are the atomic number and the number of protons related to each other?

2) How do the number of protons, number of neutrons, and the mass number relate to each other?

3) What is the one thing that determines the identity of an atom (that is, whether it is an oxygen atom or a carbon atom, etc.)?