

NAME: _____ DATE: _____ HOUR: _____

Ions and Isotopes worksheet

Complete the following:

1. For each of the ions listed, identify the total number of electrons for each

_____ 1. Al^{+3}

_____ 2. Fe^{+3}

_____ 3. Mg^{-2}

_____ 4. Sn^{+2}

_____ 5. Co^{-2}

_____ 6. Co^{-3}

_____ 7. Li^{+1}

_____ 8. Cr^{+3}

_____ 9. Rb^{-1}

_____ 10. Pt^{+2}

2. For each of the following ions, indicate the **total number of protons and electrons** in the ion.

Ion	Number of Protons	Number of Electrons
Co^{+2}		
Co^{+3}		
Cl^{-1}		
K^{+1}		
S^{-2}		
Sr^{+2}		
Al^{+3}		
P^{-3}		

3. Here are three isotopes of an element: ${}_6^{12}\text{C}$ ${}_6^{13}\text{C}$ ${}_6^{14}\text{C}$

- The element is: _____
- The number 6 refers to the _____
- The numbers 12, 13, and 14 refer to the _____
- How many protons and neutrons are in the first isotope? _____
- How many protons and neutrons are in the second isotope? _____
- How many protons and neutrons are in the third isotope? _____

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4. Complete the following chart:

Isotope name	atomic #	mass #	# of protons	# of neutrons	# of electrons
uranium-235					
uranium-238					
boron-10					
boron-11					

Part I: Fill in the following chart

Element/Ion	Atomic Number	Number of Protons	Number of Neutrons	Number of Electrons	Mass Number
${}^1_1\text{H}$					
${}^1_1\text{H}^+$					
${}^{12}_6\text{C}$					
${}^7_3\text{Li}$					
${}^{35}_{17}\text{Cl}^-$					
${}^{39}_{19}\text{K}$					
${}^{24}_{12}\text{Mg}^{2+}$					
${}^{75}_{33}\text{As}$					
${}^{108}_{47}\text{Ag}^+$					
${}^{32}_{16}\text{S}^{2-}$					
		30		28	66
	76		114		

Part II: Answer the following questions:

1. a. How can you tell if an atom has a negative charge?

b. How can you tell if an atom has a positive charge?

2. Define an isotope.

3. What would happen if the number of protons were to change in an atom?