9PS Name: _____

Atomic Number, Mass Number, Isotopes, and Stuff

1 Complete the following questions. Assume all atoms are neutral.

$^{4}_{2}He$

element: _____

protons: _____

neutrons: _____

$^{56}_{26}Fe$

element: _____

atomic #: _____

mass #: _____

$^{27}_{13}Al$

element: _____

protons: _____

electrons: _____

$^{40}_{20}Ca$

element: _____

protons: _____

neutrons: _____

electrons: _____

$^{20}_{10}Ne$

element: _____

atomic #: _____

electrons: _____

atomic mass: _____

$^{14}_{6}C$

element: _____

protons: _____

electrons: _____

neutrons: _____

$^{19}_{9}F$

element: _____

atomic #: _____

mass #: _____

electrons: _____

$^{1}_{1}H$

element: _____

atomic #: _____

electrons: _____

neutrons: _____

$^{2}_{1}H$

element: _____

protons: _____

electrons: _____

neutrons: _____

2. Write the symbol for the isotope...

a. with 8 protons and 8 neutrons

c. with atomic # 11 and mass # of 23

b. with 28 protons and 30 neutrons

d. with 92 protons and mass # 238

How many neutrons are in this isotope? _____

1. Here are three isotopes of an element: $_{6}^{12}C$ $_{6}^{13}C$ $_{6}^{14}C$

   a. The element is: _____

   b. The number 6 refers to the _____

   c. The numbers 12, 13, and 14 refer to the _____

   d. How many protons and neutrons are in the first isotope? _____

   e. How many protons and neutrons are in the second isotope? _____

   f. How many protons and neutrons are in the third isotope? _____

2. Complete the following chart:

Isotope name	atomic #	mass #	# of protons	# of neutrons	# of electrons
Uranium-235					
Chlorine-35					
Calcium-48					
Strontium-90					
Bismuth-209					
Boron-11					
			22	22	
				30	26
	15	32			
			34	45	
		208		127	
				146	94

9PS **Name:** _____

Atomic Number, Mass Number, Isotopes, and Stuff

1. Complete the following questions. Assume all atoms are neutral.

$^{4}_{2}He$

element: Helium

protons: 2

neutrons: 2

$^{56}_{26}Fe$

element: Iron

atomic #: 26

mass #: 56

$^{27}_{13}Al$

element: Aluminum

protons: 13

electrons: 13

$^{40}_{20}Ca$

element: Calcium

protons: 20

neutrons: 20

electrons: 20

$^{20}_{10}Ne$

element: Neon

atomic #: 10

electrons: 10

atomic mass: 20

$^{14}_{6}C$

element: Carbon

protons: 6

electrons: 6

neutrons: 8

$^{19}_{9}F$

element: Fluorine

atomic #: 9

mass #: 19

electrons: 9

$^{1}_{1}H$

element: Hydrogen

atomic #: 1

electrons: 1

neutrons: 0

$^{2}_{1}H$

element: Hydrogen

protons: 1

electrons: 1

neutrons: 1

2. Write the symbol for the isotope...

a. with 8 protons and 8 neutrons

$^{16}_{8}O$

b. with 28 protons and 30 neutrons

$^{58}_{28}Ni$

c. with atomic # 11 and mass # of 23

$^{23}_{11}Na$

d. with 92 protons and mass # 238

$^{238}_{92}U$

How many neutrons are in this isotope? 146

238
-92
146

1. Here are three isotopes of an element: $_{6}^{12}C$ $_{6}^{13}C$ $_{6}^{14}C$

   a. The element is: Carbon

   b. The number 6 refers to the atomic number

   c. The numbers 12, 13, and 14 refer to the mass number

   d. How many protons and neutrons are in the first isotope? P=6 N=6

   e. How many protons and neutrons are in the second isotope? P=6 N=7

   f. How many protons and neutrons are in the third isotope? P=6 N=8

2. Complete the following chart:

Isotope name	atomic #	mass #	# of protons	# of neutrons	# of electrons
Uranium-235	92	235	92	143	92
Chlorine-35	17	35	17	18	17
Calcium-48	20	48	20	28	20
Strontium-90	38	90	38	52	38
Bismuth-209	83	209	83	126	83
Boron-11	5	11	5	6	5
Titanium-44	22	44	22	22	22
Iron-56	26	56	26	30	26
Phosphorus-32	15	32	15	17	15
Selenium-79	34	79	34	45	34
Thallium-208	81	208	81	127	81
Plutonium-240	94	240	94	146	94