

WORKSHEET 4

Chemistry 110

Name _____
(last) (first)

Due date: _____

A. Complete the following table.

	NUCLEAR SYMBOL	NUMBER OF PROTONS	NUMBER OF NEUTRONS	NUMBER OF ELECTRONS	NET CHARGE
1	$^{112}_{48}\text{Cd}$	48	64	48	0
2	$^{108}_{47}\text{Ag}$	47	61	47	0
3	$^{80}_{44}\text{Ru}$	44	36	44	0
4	$^{88}_{38}\text{Sr}$	38	50	38	0
5	$^{15}_7\text{N}^{3-}$	7	8	10	-3
6	$^{64}_{30}\text{Zn}^{2+}$	30	34	28	+2

B. Write nuclear symbols for each of the following:

1. An isotope of barium that has 4 more neutrons than barium-133.

1. $^{137}_{56}\text{Ba}$

2. An atom of fluorine that has 6 more subatomic particles than carbon-13.

2. $^{16}_9\text{F}$

3. An atom of krypton that has the same number of electrons, protons, and neutrons.

3. $^{72}_{36}\text{Kr}$

4. An atom with 5 more neutrons and 3 more protons than sulfur-37

4. $^{45}_{19}\text{K}$

5. An isotope of phosphorus that contains the same number of neutrons as chlorine-34.

5. $^{32}_{15}\text{P}$

6. An isotope of cobalt with the same number of subatomic particles as manganese-60.

6. $^{58}_{27}\text{Co}$

C. Fill in the blanks.

		MASS NUMBER	NUMBER OF PROTONS	NUMBER OF NEUTRONS	NUMBER OF ELECTRONS	ELECTRON CONFIGURATION Starting with the 1s subshell
1	lithium-7	7	3	4	3	$1s^2 2s^1$
2	silicon-28	28	14	14	14	$1s^2 2s^2 2p^6 3s^2 3p^2$
3	calcium-41	41	20	21	20	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$
4	tin-105	105	50	55	50	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10}$ $4p^6 5s^2 4d^{10} 5p^2$
5	bromine-72	72	35	37	35	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^5$
6	Mg^{2+}	27	12	15	10	$1s^2 2s^2 2p^6$
7	S^{2-}	34	16	18	18	$1s^2 2s^2 2p^6 3s^2 3p^6$
8	N^{3-}	15	7	8	10	$1s^2 2s^2 2p^6$
9	Cl^-	35	17	18	18	$1s^2 2s^2 2p^6 3s^2 3p^6$