

In-Class Exercise I - KEY

Atomic Notation Practice

Atomic number (Z) is the number of the element from the periodic table. This number is equal to the number of *protons* in the nucleus of an atom of that element.

Mass number (A) is the mass of the element from the periodic table rounded to the nearest whole number. It represents the total number of protons and neutrons in the nucleus of an atom of that element.

The number of *neutrons* equals $A - Z$.

For a *neutral* atom of an element, the number of *electrons* equals the number of protons.

Complete the following table:

Element	Mass # (A)	Atomic # (Z)	protons (p^+)	neutrons (n^0)	electrons (e^-)
chlorine-37	37	17	17	20	17
^{238}U	238	92	92	146	92
carbon-14	14	6	6	8	6
^{19}F	19	9	9	10	9
oxygen-18	18	8	8	10	8
^{108}Pd	108	46	46	62	46
lithium-8	8	3	3	5	3
^{58}Fe	58	26	26	32	26
^{65}Zn	65	30	30	35	30
boron-11	11	5	5	6	5
phosphorus-32	32	15	15	17	15
magnesium-25	25	12	12	13	12
^{197}Au	197	79	79	118	79
^{20}Ne	20	10	10	10	10
^{14}N	14	7	7	7	7

KEY

Chapter 5 – More Practice Exercises

1. Write the full electron configuration for the following elements:

- a. carbon $1s^2 2s^2 2p^2$
- b. magnesium $1s^2 2s^2 2p^6 3s^2$
- c. phosphorous $1s^2 2s^2 2p^6 3s^2 3p^3$
- d. argon $1s^2 2s^2 2p^6 3s^2 3p^6$
- e. potassium $1s^2 2s^2 2p^6 3s^2 3p^3 4s^1$
- f. aluminum $1s^2 2s^2 2p^6 3s^2 3p^1$

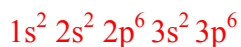
2. Write the Noble Gas (or Core) configuration for the following elements:

- a. boron $[\text{He}]2s^2 2p^1$
- b. chlorine $[\text{Ne}]3s^2 3p^5$
- c. beryllium $[\text{He}]2s^2$
- d. sodium $[\text{Ne}]3s^1$
- e. silicon $[\text{Ne}]3s^2 3p^2$
- f. calcium $[\text{Ar}]4s^2$

3. Write the full electron configuration for sulfur:



4. Write the full electron configuration for sulfide ion, S^{2-} :



5. What *element* has the same electron configuration as the sulfide ion?

argon

6. What is the term used to indicate that they have the same electron configuration?

isoelectronic

7. *Hard* Name three other ions that have the same electron configuration as the sulfide ion.

