

# Tuesday Nov 22

Answers Exercise pg 187

Ions

Bohr Diagrams of Ions

## Warm-Up

Answer each of the following in your notebook:

Where are metals located on the periodic table?

What is an atom?

Where are neutrons located and what is their charge?

Rows (across) are called \_\_\_\_\_

Group 1 \_\_\_\_\_

Group 2 \_\_\_\_\_

Group 17 \_\_\_\_\_

Group 18 \_\_\_\_\_

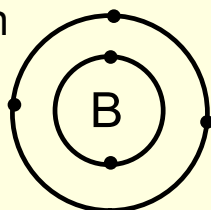
## Valence Electrons

Those electrons that are found in the highest energy level (outside orbit) are called valence electrons. These are the electrons that are gained or lost when forming ions and ionic compounds.

We can determine the number of valence electrons by:

Drawing the Bohr Diagram and counting how many electrons are in the outer orbit.

Example: Boron



The boron atom has 3 electrons in its valence.

# Ions

- when an element's valence is full it is stable and happy
- elements are willing to give up or gain  $e^-$  in order to have the appearance of a filled outermost orbit (stable)
- when  $e^-$  are gained or lost, an atom is then called an **ion**
- a positively charged ion is called a **cation**
- a negatively charged ion is called an **anion**

## Bohr Diagram of Stable Ions

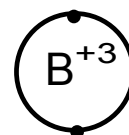
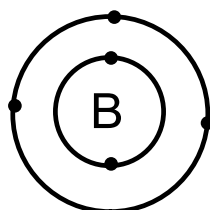
Draw the Bohr Diagram for the atom and determine how many electrons are in the valence.

Decide if the Atom is going to lose or gain electrons in order to become stable i.e. if it has 6 in the second orbit, it will gain 2 to be stable instead of losing 6.

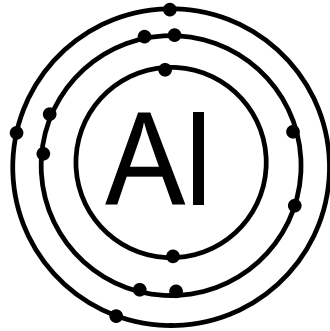
Draw a new Bohr diagram showing the extra or lost electrons

In the center put the ionic symbol (the symbol of the element showing how many electrons it has gained or lost i.e.  $Li^{+1}$ ,  $M^{-2}$  etc

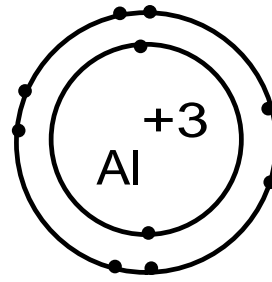
Example: Boron



## Example 2: Aluminum



Atom



Ion

## Attachments

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S10 answers pg 187 #1-4.doc