

Friday – the Friday quiz never includes new things from Thursday

Purpose:

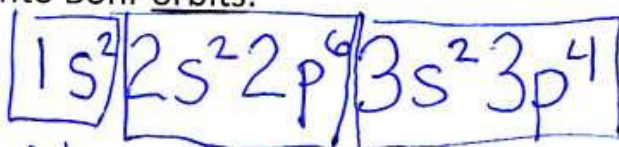
What are three skills for college-style orbit notation?

WARMUP (have two things visible and out when the bell rings):

- 1) Yesterday's chart called SHAPES.
- 2) Yesterday's homework with BaseballFish

you will always have your new table on any quiz and test.

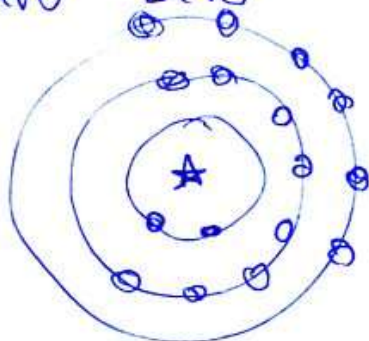
#1 If given an atom's orbitals, translate it into Bohr orbits.



1st
Level

2nd
Level

3rd
Level

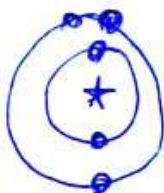


#0 How do we write modern style atom orbitals

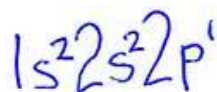
A NEUTRAL BORON ATOM



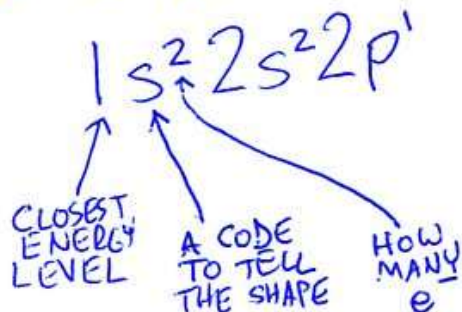
BORON BOHR ORBITS



BORON MODERN ORBITALS



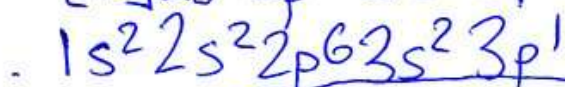
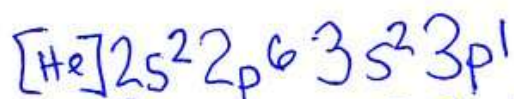
How to read the symbols:



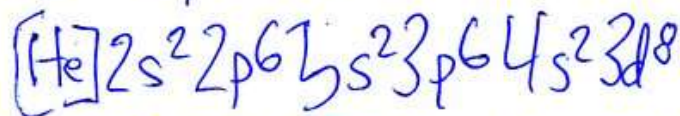
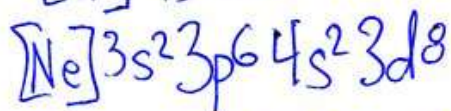
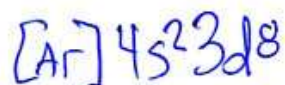
How many have
leave to
it

#2 If given the number of electrons in an atom, use our table to write the orbitals

"write orbitals for" $\begin{pmatrix} 13p \\ 13n \\ 13e \end{pmatrix}$



write orbitals for a $28e^-$ ATOM



1) NH ₃ $\begin{array}{c} \text{H} \\ \vdots \\ \text{H}:\text{N}:\text{H} \\ \vdots \\ \text{4 things} \\ \text{(3 atoms)} \end{array}$	2) H ₂ S $\begin{array}{c} \text{H} \\ \vdots \\ \text{H}:\text{S}:\text{H} \\ \vdots \\ \text{4 things} \\ \text{(2 atoms)} \end{array}$	3) BI ₃ $3 + 21 = 26$ $\begin{array}{c} \text{I} \\ \vdots \\ \text{I}:\text{B}:\text{I} \\ \vdots \\ \text{I} \\ \vdots \end{array}$	4) CH ₄ $\begin{array}{c} \text{H} \\ \vdots \\ \text{H}:\text{C}:\text{H} \\ \vdots \\ \text{H} \end{array}$
5) O ₃ $\begin{array}{c} \text{O} \\ \vdots \\ \text{O}:\text{O} \\ \vdots \\ \text{O} \end{array}$	6) CO ₂ $\text{O}::\text{C}::\text{O}$	7) H ₂ $\text{H}:\text{H}$	8) AsI ₃ $\begin{array}{c} \text{I} \\ \vdots \\ \text{I}:\text{As}:\text{I} \\ \vdots \\ \text{I} \end{array}$
9) HF $\text{H}:\text{F}$	10) C ₂ H ₄ $\begin{array}{c} \text{H} \\ \vdots \\ \text{H}:\text{C}::\text{C}:\text{H} \\ \vdots \\ \text{H} \end{array}$	11) CH ₂ O (C central) $\begin{array}{c} \text{H}:\text{C}::\text{O} \\ \vdots \\ \text{H} \end{array}$	12) F ₂ $\text{F}:\text{F}$

Now go back and using your reference sheet from class decide what shape the first eight molecules are on this page.

- 1) trigonal pyramidal
- 2) bent
- 3) trigonal planar
- 4) tetrahedral

- 5) BENT
- 6) LINEAR
- 7) LINEAR
- 8) trigonal pyramidal





Design the Lewis dot structure for each formula. Follow the rules.

1. *Complete each step with the correct word or words.*

In class we learned that the steps for drawing a Lewis Structure of a molecule are:

- a. First, you total up the number of valence _____ on all of the atoms of the formula.
- b. Then, when totaling up the e-, assume that each atom is (charged / neutral)
- c. Next, place the element symbols on your drawing first, putting in the middle, any element that there are (few of / lots of)
- d. Now add electron dots (one at a time / two at a time) to bond the atoms together
- e. Add any leftover (protons / electrons) as **lone pairs**
- f. Check that each atom is stable and follows the (trio / quartet / octet) rule.
- g. If you ran out of e-, you should erase some lone pairs and turn them into (single / double) bonds.